GEOGRAPHY

EUROPE AND ASIA

BARROWS-PARKER

SILVER, BURDETT AND COMPANY

GEOGRAPHY

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BY

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SILVER, BURDETT AND COMPANY

NEW YORK NEWARK BOSTON CHICAGO SAN FRANCISCO

Printed in the United States of America

THE POINT OF VIEW OF THIS SERIES OF GEOGRAPHIES

The chief object of these books is to guide pupils in gaining useful understandings concerning relationships of man to his natural environment and in developing various abilities, habits, and attitudes which are inherent in the practice of sound geographical thinking.

In keeping with a widespread demand among educators for the elimination of waste in the work in geography in the grades, most of the regions of the world are treated but once, and those of little import to the young citizens of America are subordinated appropriately. As a result, much space has been gained, and this has permitted a treatment of regions of large significance which is more extended and richer than otherwise would have been possible.

The text is graded carefully with reference to difficulty of language and of ideas. The facts presented in dealing with any region or country are those which are most useful in acquiring an understanding of its geographical personality, and the pupil is led to apply the ideas mastered in the earlier studies to the solution of later problems. Geographical terms are introduced only when needed and only after the underlying concepts have been made clear. No single method of presenting material has been followed, various methods having been employed as seemed most effective in particular cases. Whatever the method, the text systematically provides for supervised study. By means of varied exercises, definite goals are set up for the pupil to reach through the study of text, maps, and pictures, used singly or in some combination. Explicit directions for procedure in such studies are given, and means are provided by which the pupil can check his own conclusions. Thus *active* learning, as against *passive* learning, is stressed consistently, in recognition of the fact that neither text nor teacher can in any way *give* a pupil real understandings, that they can merely furnish appropriate materials for him to use in gaining understandings, indicate logical procedures in using the materials, and test for evidences of mastery of the understandings and for evidences also of abilities and skills which should have been developed concurrently. Review frequently is accomplished by the application of familiar concepts to new situations, and, especially in the earlier units, liberal use is made of drill devices on the play level. Since from beginning to end the text deals with the relations of specific groups of people to their natural environments, the treatment throughout is regional in character.

The colored maps are characterized especially by their simplicity; they are not intended to serve as general reference maps, and few or no names appear on them that do not function in the text discussion. Like the reading matter to which they are closely tied, the maps are progressive in character; the simpler ideas are developed very early, while such difficult matters as latitude and longitude are introduced only when needed at comparatively late stages. The novel treatment of the earlier maps, especially of the unlettered maps, superimposed on the globe, was designed to develop, at the outset, correct habits of map reading and an understanding of the size and form of the earth.

The pictures are restricted to views of real geographic quality and are an integral and vitally important part of the text rather than merely illustrative of it. Definite and varied provision is made for their use as a source of information, and captions are omitted in order that picture study may accomplish the ends of field study, in so far as the nature of the case permits.

The materials of *Journeys in Distant Lands* are arranged and treated with a view to leading the child to develop a concept of the world as a

whole and to sense the relationships between distance from the equator and man's activities. At the outset, the child is more interested in remote lands than in his home surroundings; moreover, it is only after he views the lives of other peoples in unfamiliar environments that he can consider effectively the relationship of his home life to the familiar local environment.

In dealing with the homeland, *United States and Canada* presents only those items in the geography of each part of the country which, because of their outstanding importance, should be known by its young citizens everywhere. Accordingly, although unique provision is made for a study of the home locality, wherever it may be, the distinctive field of the state or local geography is not invaded. In the discussion of the West the necessary transition is made from the ideas of general regions which were developed in *Journeys in Distant Lands* to those of "work regions" which underlie the organization of the material on the remainder of the United States. Urban geography receives unprecedented emphasis for an elementary treatment, an emphasis which is in keeping with the importance of the city in modern American life and with the fact that more than half the people of the country live in urban communities. The cumulative "carry over" secured through the organization of material by "work regions" reaches its climax in the discussion of Canada.

The organization of the material in *Europe and Asia* is unique. The study in turn of occidental adjustments in western Europe and of oriental adjustments in eastern Asia affords opportunity for contrasts of major import and effectively paves the way for consideration of the "bridge lands" of eastern Europe and western Asia, commonly little understood. Each country, section, and, so far as practicable, each city considered is so treated as to portray clearly its geographical individuality.

Southern Lands completes the series. It views Latin America as a field in which Spanish and Portuguese culture has been modified in adjustment to a new environment. It treats Africa in terms of recent European exploitation. This point of view illuminates the remarkable development of Africa during the last half century, and introduces the pupil to the fascinating realm of political geography at an appropriate juncture. It utilizes Australia to test and apply the geographical powers gained by the pupil in the study of other continents — a procedure to which Australia is particularly suited. It develops in the closing chapters summary concepts of the "world pattern" of to-day (of the population, work, and political structures of the world, each as related to earth conditions), and shows that the daily life of the pupil is related not only to the natural environment of his home but also to that of places throughout the world. Sensing thus the interdependence of men and the unity of the earth, the pupil is aided, through training in geographical thinking, to become an intelligent citizen of the world.

Though the books of the series contain much that is novel and unique, they in no sense represent untested theories. They are, instead, based upon a decade of preparatory experimentation with materials and methods that was carried on in all the grades of the elementary school in which geography is taught.

The authors are deeply indebted to many persons for assistance, and especially to Mrs. Anna P. Twist for preparing a dummy by which the compositors made up the pages of each book, and to Mrs. Barrows for much aid in gathering data.

Harlan H. Barrows
Edith Putnam Parker
Margaret Terrell Parker

A MESSAGE TO EACH GIRL OR BOY WHO USES THIS BOOK

Dear Friend:

Journeys in Distant Lands helped you to understand why people in various remote parts of the world, including parts of Europe and Asia, live as they do. *United States and Canada* helped you to see reasons for the ways of life in the different regions of our own country and of Canada. This book deals entirely with Europe and Asia. In it we tell you more about some of the lands you visited before, and describe the ways of peoples in other European and Asiatic countries. You will find how they use their lands and other natural resources, and why they live as they do.

If you were to search through the files of an American newspaper for items about foreign lands, you would find more of them relating to Europe than to any other continent. If you were to compare the number of people who leave America in the course of a year to visit Europe with the number of those who go from America to Asia, South America, Africa, or Australia, you would find that the visitors to Europe are by far the most numerous. If you were to study the overseas trade of the United States, you would find that our trade with Europe is far greater than that with any other continent. Of the people living in the United States, one out of seven was born in a foreign land, and of these foreign-born people, eight out of ten came from Europe. Furthermore, the parents of thirteen millions of people born in the United States and now living here came from Europe. Most other Americans are descendants of Europeans. Europe is the mother of American civilization, and it concerns us more than any other continent save our own. European peoples have played so large a part in the work of the world, not only in Europe and America, but also in all the other continents, that to understand life in European countries helps one greatly in explaining the ways of living in many other lands.

One cannot understand life in many countries in Europe, however, without a knowledge of life in certain Asiatic countries, because from Asia there came, in centuries past, most of the peoples of Europe. Moreover, two of the countries which we shall visit with you lie partly in Europe and partly in Asia. It is, however, not merely in connection with Europe that Asia has a special interest for Americans. Our nearest neighbors across the Pacific are the greatest two countries of Asia — Japan and China — and there are thousands of Chinese and Japanese in the United States. In Japan and China there are about four times as many people as there are in the United States and Canada. Our trade with Asia, while much less than that with Europe, is very important, and in the future probably will be much greater than now. All the great powers of the world, except the United States, are in either Europe or Asia. In these two continents live about three-fourths of the world's people. We hope you will greatly enjoy studying about them.

You will find in the book directions for making maps and graphs, puzzles to work, games to play, and many other things to do which will help you in your study. There are plans for keeping another geography notebook, and we believe you will take pride in making one with such care that it will be useful to you in later work as well as in your present study of Europe and Asia.

Very sincerely yours,

Harlan H. Barrows
Edith Putnam Parker
Margaret Terrell Parker

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Figure 1

From Oroc

Figure 2

By courtesy of Della Olson

EUROPE AND ASIA

CONTRASTS

Two pictures. — The pictures in Figures 1 and 2 were taken in *Eurasia* (Fig. 3), the huge land mass which contains the continents of Europe and Asia. One is a scene in the most northern of those European countries which border the Atlantic. What country is this (Fig. 3)? The other was taken near the southernmost point of the mainland of Asia. Both pictures show "winter" landscapes. What does the map in Figure 3 show about the *latitude* (that is, the distance from the equator) of Norway and of southernmost Asia that helps you to decide which picture was taken in Europe and which one in Asia? How do you explain the great difference in these "winter" landscapes? Eurasia contains more than a third of all the land in the world. In so huge an area, extending through so many degrees of latitude, there is, of course, great variety in kinds of places.

Europe and Asia differ from each other in many ways. The following exercises will help you to find some of the striking differences between them.

Latitude comparisons. — 1. From the map in Figure 3, estimate the latitude of the southernmost point of the mainland of Europe. It is about as far north of the equator as are the northern boundaries of Arizona, New Mexico, Oklahoma, Arkansas, Tennessee, and North Carolina. Thirteen states of the United States lie, wholly or in large part, farther south than any of the mainland of Europe. Can you name them all?

On the map in Figure 3, find the line which passes through all places in Europe which are fifty degrees (50°) north of the equator. This line is called the fiftieth *parallel* of latitude. In North America, this east-west line crosses southern Canada and is farther north than any part of the United States except Alaska. Is much or little of Europe north of this line? Europe is in what general direction across the Atlantic from the United States?

2. Find Europe and North America on the map in Figure 4. As you look at this map, imagine moving Europe *due* west until it would lie on North Amer-

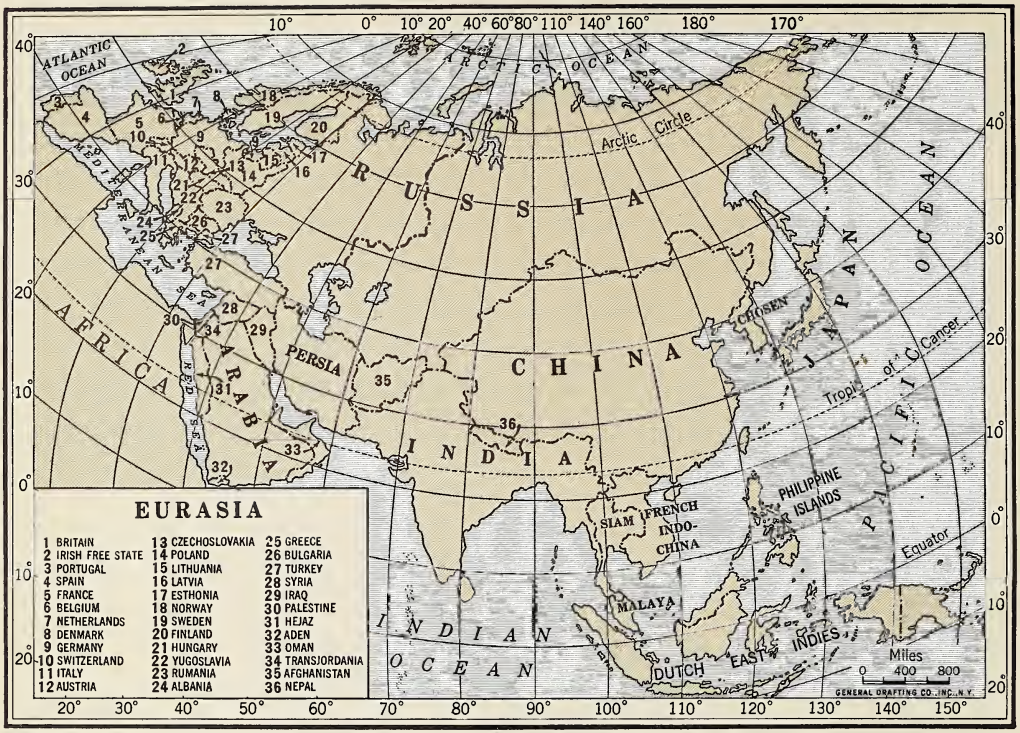

Figure 3

ica. It then would be in the position in which it is shown in Figure 5. Does not this diagram help you to think of Europe as about as far north of the equator as *northern* United States and Canada are?

3. Find Asia and North America on the map in Figure 4. Imagine moving Asia due west till it would lie over North America. Would its southernmost point lie farther south than the southernmost point of North America, or not so far south? Would its northernmost point be farther north than the northernmost point of North America, or not?

4. Find on the maps in Figures 3 and 4 the dotted line north of the equator which stands for the Tropic of Cancer. How much of Europe is north of this line? People in Europe, then, never can see the sun directly overhead at noon. In the part of Asia south of the Tropic of Cancer the sun can be seen directly overhead at noon on certain days (*Journeys in Distant Lands*, pp. 50–51, 138–140).

5. What differences between Europe and Asia have you discovered in making these comparisons?

Counting countries. — Since Asia is much larger than Europe and since it extends from very near the equator to far beyond the Arctic Circle, you might expect to find more countries in it than there are in Europe. Does the map in Figure 3 show that there *are* more in Asia than in Europe, or not?

Reading graphs and maps. — 1. Draw a rectangle one-half inch in width by eight and one-half inches in height to represent the area of Asia, and divide it into half-inch squares. Let each of these squares stand for 1,000,000 square miles. What, then, is the area of Asia? Draw another rectangle of the same width as the first one but only one and seven-eighths inches in height to show, on the same scale, the area of Europe. Mark off half-inch squares in it as you did in the rectangle for Asia, remembering that each square stands for 1,000,000 square miles. There will be three whole squares and a remainder that is somewhat less than a whole square. About what, then, is the area of Europe? Draw a third rectangle of the same width as the others but one and one-half inches in height to show, on the same scale, the area of the United States without its scattered lands. What do you find its area to be? After comparing these rectangles, fill the blanks in

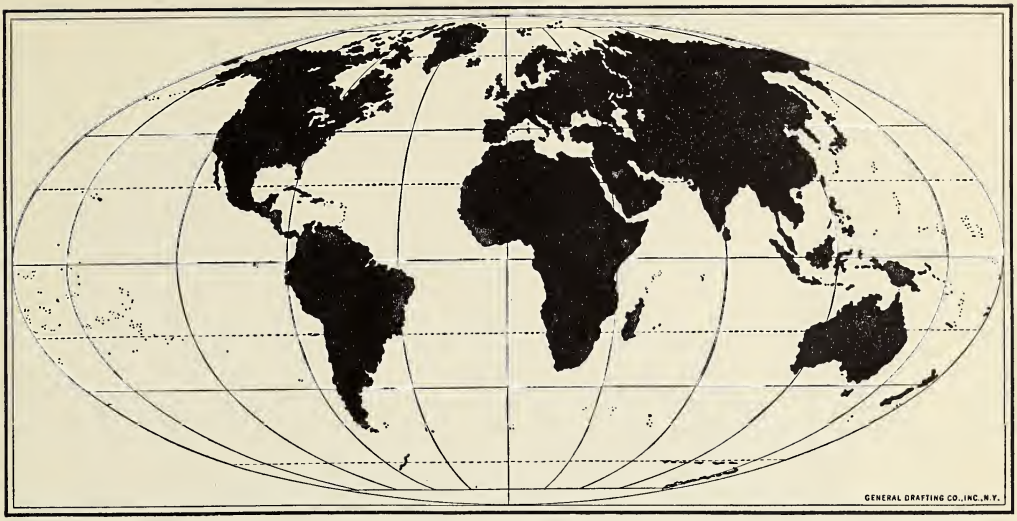

Figure 4

Figure 5

the following sentence correctly. Asia is more than —— times as large as the United States, and more than —— times as large as Europe.

2. The number of people in Europe, Asia, and the United States also may be shown on your graph. In round numbers, there were 120,000,000 people in the United States in 1930. To show this, make 12 dots in the rectangle for the United States, spacing them as evenly as you can. Each dot stands for 10,000,000 people. Make 48 dots in the rectangle for Europe, and 88 dots in the one for Asia. In which rectangle are the dots most crowded? What does the graph now show about the average number of people to the square mile in Europe?

3. On the map in Figure 6, find all the lands in Europe which have, as an average, a population of more than thirty-two people to the square mile. Do you think that those lands together make more than half of Europe, or less than half of it? On the map in Figure 7, find all the lands in Asia which have, as an average, a population of more than thirty-two people to the square mile. Do you think that those lands together make more than half of Asia, or less than half?

After seeing Eurasia on the maps in Figures 3 and 4 you should have noted at a glance that the maps in Figures 6 and 7 were made on very different scales. Did you do so? Which is on the larger scale? If a map of Asia were drawn on the scale of the map in Figure 6, it would be about twice as wide and about twice as long as the map of Asia in Figure 7, and so of course could not be placed on a page in this book. The areas in Asia which have on the average fewer than sixteen people to the square mile are together about *three* times as large as all Europe. Such a fact cannot be seen in comparing these maps unless their scales are taken into account.

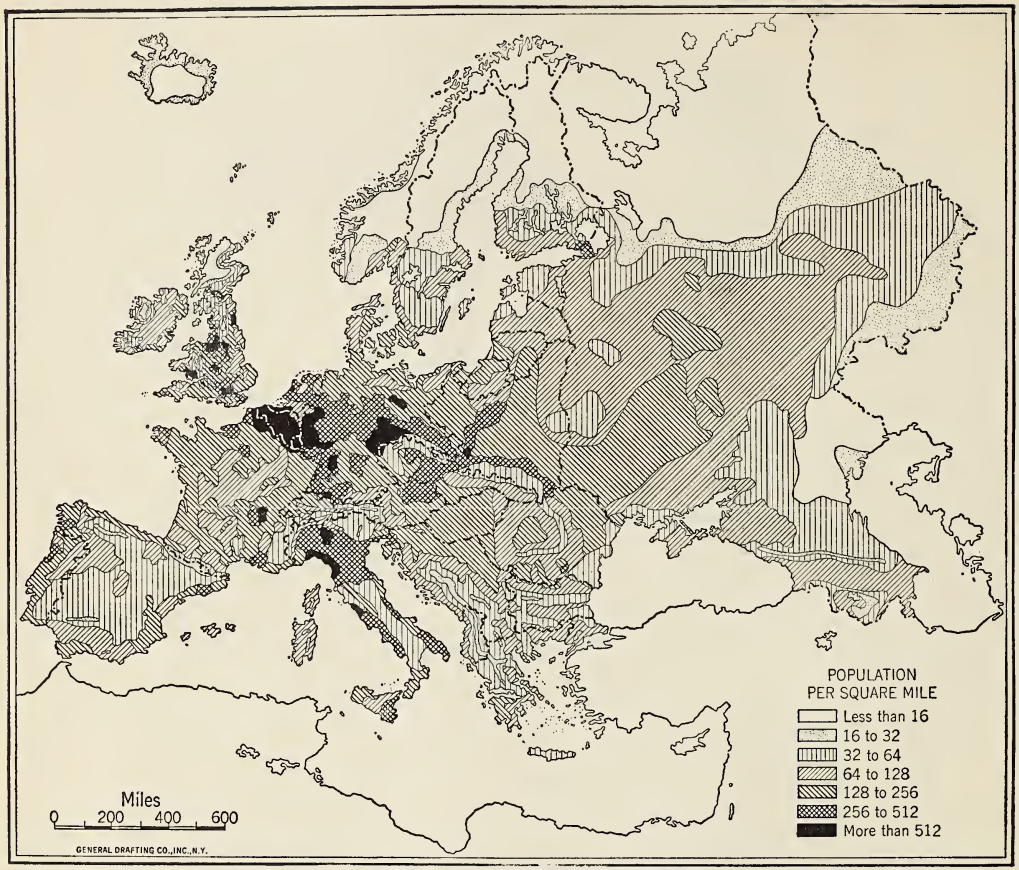

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Figure 6

Raising and answering a question. — Find on the map in Figure 4 the one continent which is smaller than Europe. Europe, as you now have seen, is less than a fourth the size of Asia, is the smallest of the continents, save one, and contains no lands south of the Tropic of Cancer. Asia, on the other hand, is much the largest of the continents, and extends so far to the north and to the south that it contains both polar and tropical lands. Yet Europe has a greater number of countries than Asia has, is more densely populated than Asia is, and in various other ways surpasses its much larger neighbor. Do you not at once wonder why?

It is much less difficult to discover a few striking contrasts which *suggest* such a question than it is to find the *many* facts which help one to answer it satisfactorily. However, as you see *the ways in which people in various parts of these two continents have adjusted their ways of living and of work to the kinds of lands in which they dwell*, you will discover, from time to time, facts which will serve you later in explaining why Europe surpasses Asia in various ways. *At the close of your study of Europe and Asia*, you should be able to state many such facts.

A study guide. — As you study each country or group of countries, you should find (1) what kind or kinds of work are especially important there, and (2) the principal reasons for the importance of that kind, or of those kinds.

In connection with each country, you should try to picture, in imagination, landscapes you would see if you were to travel there. In thinking about any landscape you "see," it is helpful to ask yourself the following questions.

1. Are there any signs in the landscape of *agriculture?* Of *grazing?* Of *fishing* or *hunting?* Of *forest work?* Of *mining?* Of *manufacturing?* Of *commerce?* If so, what, in each case, are they?

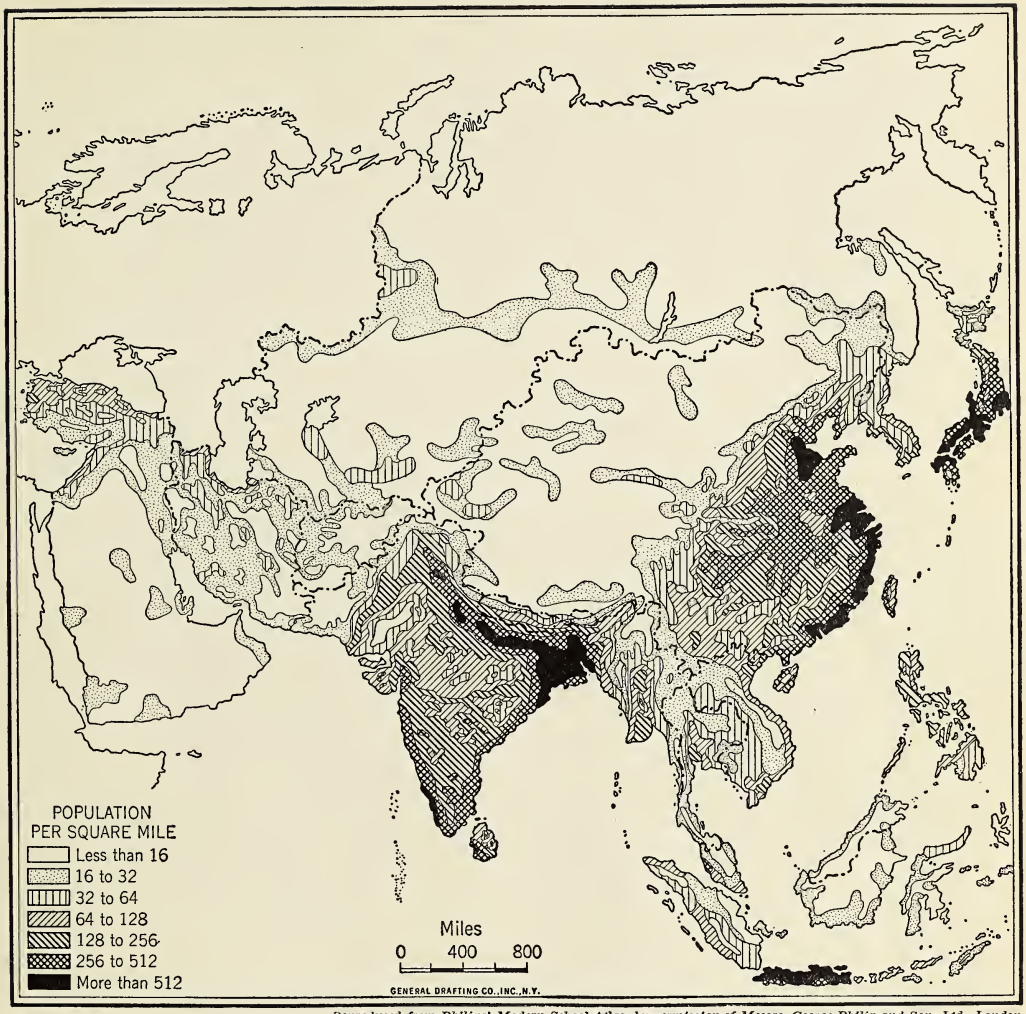

Figure 7

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2. If there are signs of agriculture, do they suggest stock farming? Grain farming? Truck farming? Dairy farming? Mixed farming? What reasons, if any, for such work are to be found in the landscape?

3. If there are signs of other work, what reasons for it, if any, does the landscape suggest?

4. Does the landscape suggest any other ways in which men are fitting their work, their play, and their ways of living into the kind of land in which they dwell? If so, what are they?

A notebook record. — It will be helpful in your study to keep a geography notebook. You might put in it first the population graph which you have drawn, and next a list of the various contrasts between Europe and Asia which you already have found. Be sure to give the graph and the list suitable headings in your notebook.

The first unit. — The British Isles are the first section of Europe described in the following pages. Find them on the map in Figure 8. Are they north of the fiftieth parallel, or south of it? In what direction, then, would you go from the coast of Northeastern United States to reach them? Do you see from the map in Figure 8 one good reason why these islands are called European lands?

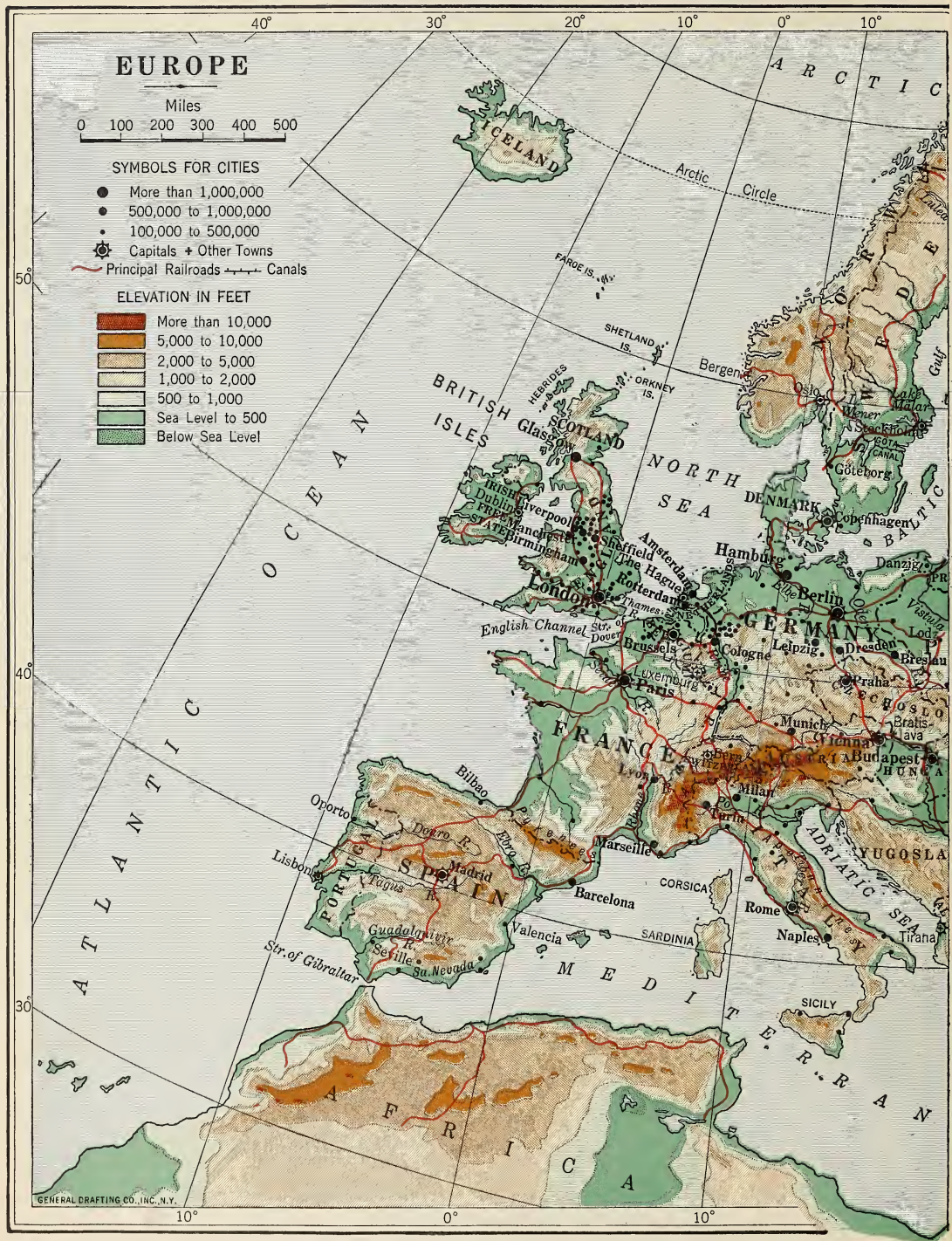
EUROPE
Miles
0 100 200 300 400 500
SYMBOLS FOR CITIES
More than 1,000,000
500,000 to 1,000,000
100,000 to 500,000
Capitals + Other Towns
Principal Railroads
Canals
ELEVATION IN FEET
More than 10,000
5,000 to 10,000
2,000 to 5,000
1,000 to 2,000
500 to 1,000
Sea Level to 500
Below Sea Level
ICELAND
Arctic Circle
FAROE IS.
SHETLAND IS.
ORKNEY IS.
HEBRIDES
BRITISH ISLES
SCOTLAND
Glasgow
Liverpool
Manchester
Birmingham
Sheffield
Amsterdam
The Hague
Rotterdam
London
Thames R.
English Channel
Str. of Dover
Brussels
Cologne
Luxemburg
Paris
Seine R.
Loire R.
Lyons
Bilbao
Oporto
Douro R.
Ebro R.
Pyrenees
Lisbon
Tagus R.
Madrid
Barcelona
Marseilles
Guadalquivir R.
Seville
Sa. Nevada
Valencia
Str. of Gibraltar
CORSICA
SARDINIA
Rome
Naples
SICILY
Tirana
ADRIATIC SEA
YUGOSLA
Milan
Turin
Po R.
Munich
Vienna
Budapest
HUNGA
Praha
Leipzig
Dresden
Breslau
Berlin
Elbe R.
Hamburg
Danzig
Copenhagen
DENMARK
Göteborg
Oslo
Bergen
NORTH SEA
BALTIC SEA
GERMANY
FRANCE
SPAIN
PORTUGAL
ATLANTIC OCEAN
MEDITERRANEAN SEA
AFRICA
ARCTIC
GENERAL DRAFTING CO., INC., N.Y.
40°
30°
20°
10°
0°
10°
50°
40°
30°

Figure 8

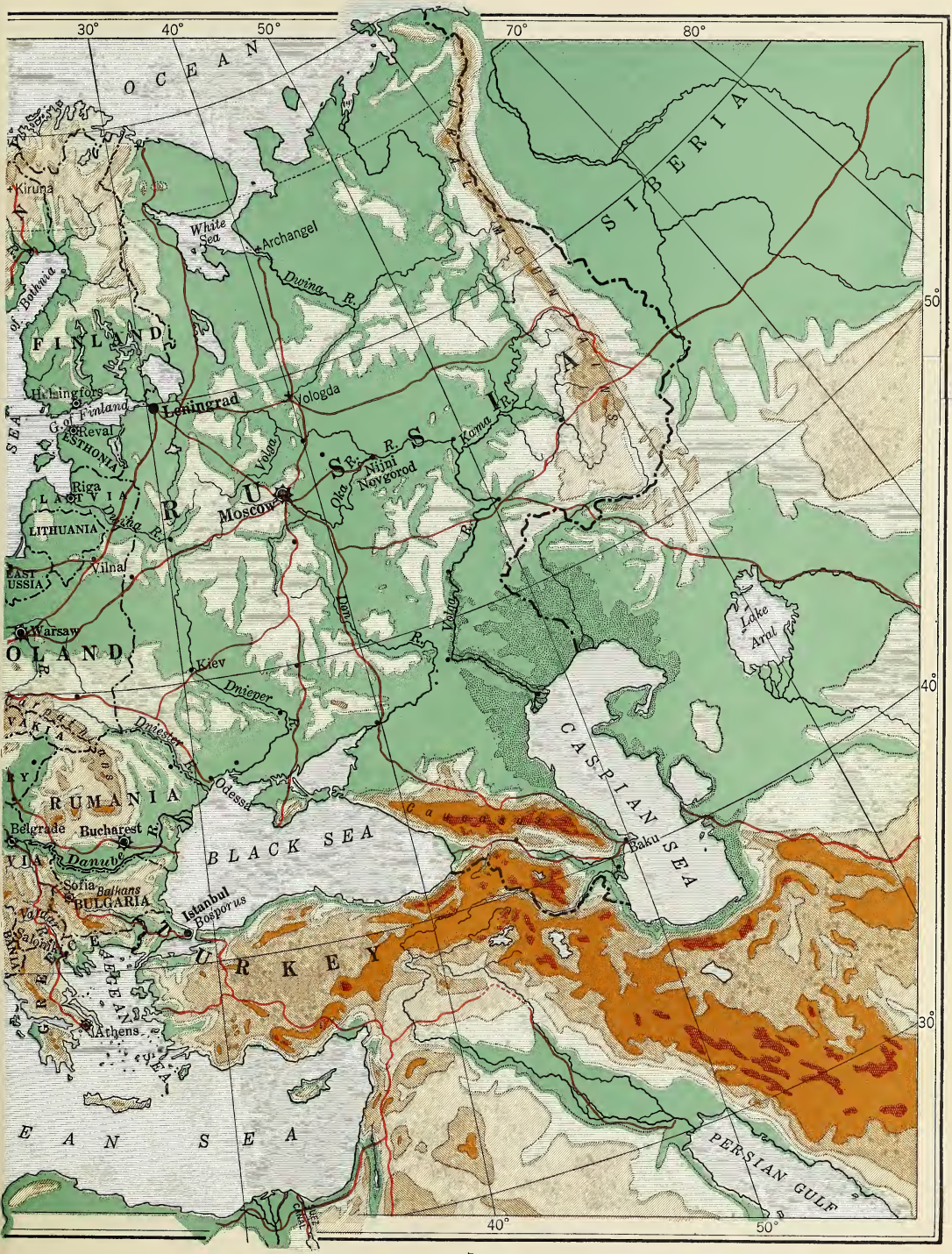
30°
40°
50°
70°
80°
OCEAN
SIBERIA
Kiruna
White Sea
Archangel
Dwina R.
Gulf of Bothnia
FINLAND
Helsingfors
Finland
Leningrad
Vologda
Gulf of Finland
Reval
ESTHONIA
Volga R.
Kama R.
Riga
LATVIA
Moscow
Oka R.
Nizni Novgorod
LITHUANIA
Dwina R.
Vilna
EAST PRUSSIA
Warsaw
POLAND
Kiev
Dnieper R.
Volga R.
Lake Aral
CASPIAN SEA
Dniester R.
Odessa
RUMANIA
Belgrade
Bucharest
Danube
BLACK SEA
Baku
Sofia
Balkans
BULGARIA
Istanbul
Bosporus
TURKEY
Athens
PERSIAN GULF
40°
50°
30°
40°

Figure 9

THE BRITISH ISLES

Entering Britain. — If you were to visit the British Isles, you might disembark from an ocean liner at Liverpool, "the great western gateway of England," to begin your travels in the islands.

You doubtless would land there upon the long, narrow, floating wharf, called the "landing stage," part of which is shown in the left foreground in Figure 9. It rests on pontoon boats, and so rises and sinks as the level of the water changes. Notice that bridges connect it with the shore. Notice, too, that along the shore there are closed docks, not piers as at New York and other American ports. Ships enter these docks by means of locks. It is because of great daily changes in the level of the water in the harbor of Liverpool that men have chosen to build these special kinds of harbor works as an aid in handling the vast commerce of the port.

New and Old

Twenty centuries in a day. — Find Liverpool and London on the map in Figure 8. You could go by rail from Liverpool to London in about five hours. In a single day's journey in Great Britain, you might have glimpses of many parts of the island.

In many landscapes there and in other "old world" countries, you would find a special charm which comes only from man's use of the land through hundreds of years. Many quaint villages, laid out long ago, are among the signs of age. One of these villages you see in Figure 10. Some of them are so

© Ewing Galloway

Figure 10

hidden by lovely old trees that from a distance you might catch mere glimpses of a red-tiled roof or one of yellow thatch, of a gray church spire, or of smoke from cottage chimneys. Perhaps an ancient castle towers near-by. Surrounding many villages are rolling stretches of clean fields and pastures. In their midst stand sturdy farmhouses which have sheltered farmers of many generations, and old mansions, set in park-like grounds. Very old trees and hedgerows border many fields and roadways. On the bleak moorlands, too, stand many old dwellings and fences, bare and gray, unhidden by tree or vine. In many cases they are built of stones gathered from the lands about them.

There also are crumbled ruins of prehistoric towns in England, signs of the life of people who lived there twenty centuries ago. A dreary part of southwestern England is thought to have been King Arthur's home, and a part of Sherwood Forest, named in the stories of Robin Hood, still stands. Cathedrals and ancient public buildings tell of the age of many cities.

However, besides the signs of age there are many signs of very modern, very thriving work, like that suggested by Figure 9. Side by side with the works of earlier centuries there are new cities, new villages, new farmhouses, new mansions, new public buildings, and new factories. The numerous grimy factory districts, with their giant smokestacks and their rows and rows of workmen's houses, have been called "ugly blotches on the fair face of the land."

In the British Islands, then, there is much to see within short distances — buildings hundreds of years old, farmlands used for centuries, roads laid out a thousand years ago, mines worked decade after decade, large cities, both old and new, a great many modern mills, splendidly equipped seaports, and airdromes which harbor planes that come and go between Britain and many other lands. Indeed, one may see there, as an English railroad company advertises, "twenty centuries in a day."

Britain and the Irish Free State

Confusing names. — Formerly the name "Britain" was commonly used to mean the British Isles. Since a separate government has been established for the Irish Free State, however, "Britain" commonly means all the territory of the islands except that of the Irish Free State. In this book, "Britain" has this later meaning. It consists of Great Britain, the largest island, part of Ireland, the next largest island, and many small islands. Find Great Britain and Ireland on the map in Figure 11. What are the three large divisions of Great Britain called (Fig. 11)? What is the name of the part of Ireland which *is* included in Britain (Fig. 11)? England, Scotland, Wales, and Northern Ireland, with their fringing islands, are divisions of Britain somewhat like states, while Great Britain and Ireland are island names. Although the Irish Free State is not a part of Britain, it is, like Canada, a British country. All the British self-governing lands taken together are called the British Commonwealth. The lands of the British Commonwealth and those which Britain controls and governs together form the British Empire. In the British Isles, then, are Britain and the Irish Free State, and in Britain are England, Scotland, Wales, Northern Ireland, and a few small islands not included in these divisions. As you study further, be sure not to confuse the names British Isles, Britain, and Great Britain.

Comparisons. — 1. The area of Britain is only about three-fourths that of New England, New York, and New Jersey. You doubtless remember that much of this part of the United States is densely settled. Yet there are more than twice as many


BRITISH ISLES
Miles
0 20 40 60 80 100
SYMBOLS FOR CITIES & TOWNS
More than 500,000 Population
100,000 to 500,000
50,000 to 100,000
30,000 to 50,000
Other Towns
Capital
Canals
Principal Railroads
ELEVATIONS IN FEET
More than 2,000
1,000 to 2,000
500 to 1,000
Sea Level to 500
ATLANTIC OCEAN
NORTH SEA
IRISH SEA
ENGLISH CHANNEL
BRISTOL CHANNEL
SCOTLAND
IRELAND
IRISH FREE STATE
NORTHERN IRELAND
ENGLAND
WALES
FRANCE
HEBRIDES
ORKNEY ISLANDS
ISLE OF MAN
ISLE OF WIGHT
CHANNEL ISLANDS
Inverness
Aberdeen
Dundee
Leith
Edinburgh
Glasgow
Belfast
Dublin
Cork
Newcastle
Carlisle
Middlesbrough
Bradford
Leeds
Hull
Liverpool
Manchester
Sheffield
Grimsby
Stoke-on-Trent
Birmingham
Yarmouth
Cambridge
Oxford
London
Swansea
Cardiff
Bristol
Southampton
Plymouth
Dover
Calais
Cardigan Bay
St. Georges Channel
North Channel
Moray Firth
Firth of Tay
Firth of Forth
Firth of Clyde
Solway Firth
R. Mersey
R. Humber
The Wash
Strait of Dover
LANDS END
SCILLY IS.
Alderney
Guernsey
Jersey
GENERAL DRAFTING CO., INC., N.Y.

Figure 11

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Figure 12. Districts producing coal

people in Britain as there are in New England, New York, and New Jersey. What does this comparison show you about Britain?

2. How many cities of more than 100,000 people are there in Britain (Fig. 11)? The large number of these cities suggests at once that at least two kinds of work are very important in Britain. What kinds are they? It should not surprise you, then, to find that the people engaged in manufacturing and trade there are several times as numerous as those engaged in agriculture. Britain is another part of the world in which, as in a part of Northeastern United States, large cities are numerous and maritime work and manufacturing work are of outstanding importance.

3. Does the map in Figure 11 suggest that the Irish Free State is peopled more densely than Britain, or less densely? How? That manufacturing and trade are more important there than in Britain, or less so? How? In the Irish Free State, more people are engaged in farming than in any other one kind of work. The Irish Free State is about a fourth as large as Britain, but it contains only about one-fourteenth as many people. The map in Figure 12 suggests one reason for these differences between Britain and the Irish Free State. What is it?

4. What striking facts can you read from the map in Figure 11 about the *distribution* of cities in Britain?

5. Find Cardiff (Fig. 11), in southeastern Wales, and the cluster of towns nea~-by. What does the map in Figure 12 show about this part of Wales which suggests one reason for the clustering of cities there? What landscape signs does this map suggest to you? What does the map in Figure 12 show about the parts of Britain in which the following cities (Fig. 11) are located: Stoke-on-Trent, Newcastle, Sheffield, Birmingham, Manchester, Leeds, and Glasgow? What is the only large cluster of cities in Britain which is not located on or near a coal field?

For your notebook. — Make for your notebook a list of the chief impressions that you now have of the British Isles, or of parts of them. The first two items on your list might be, for example:

1. Britain is much more densely populated than the part of the United States which is in New England, New York, and New Jersey.

2. A large part of the people of the Irish Free State are engaged in farming.

You should be able to list at least six other items.

Directions for reading. — To the ideas already given, another now should be added. Britain, though small as compared with the United States, is among the few very important, powerful countries of the world. As you study further about how the people live, and why they live as they do, find all you can that helps to explain (1) the differences between Britain and the Irish Free State and (2) the dense population and greatness of the island land of Britain.

A Great Manufacturing Country

Glimpses of mining and manufacturing districts. — In Figure 13 there are landscape signs of the work which the map in Figure 12 should have suggested to you. In connection with the reading of that map, had you thought of miners' cottages, railroads, coal cars, and dump heaps, as well as of buildings to house machinery for hoisting, breaking, and sorting coal, and other such work? A coal-mining plant such as that in Figure 13 is called a "colliery." Many collieries somewhat like the one pictured might be seen in the coal-producing areas shown in Figure 12.

Figures 14, 15, 16, 17, and 18 show parts of five important manufacturing districts of Britain, as they appear from an airplane. Figure 14 was taken in southeastern Wales. Does it not suggest to you the making of iron and steel? Tell how. In the picture in Figure 15, which was taken at Stoke-on-

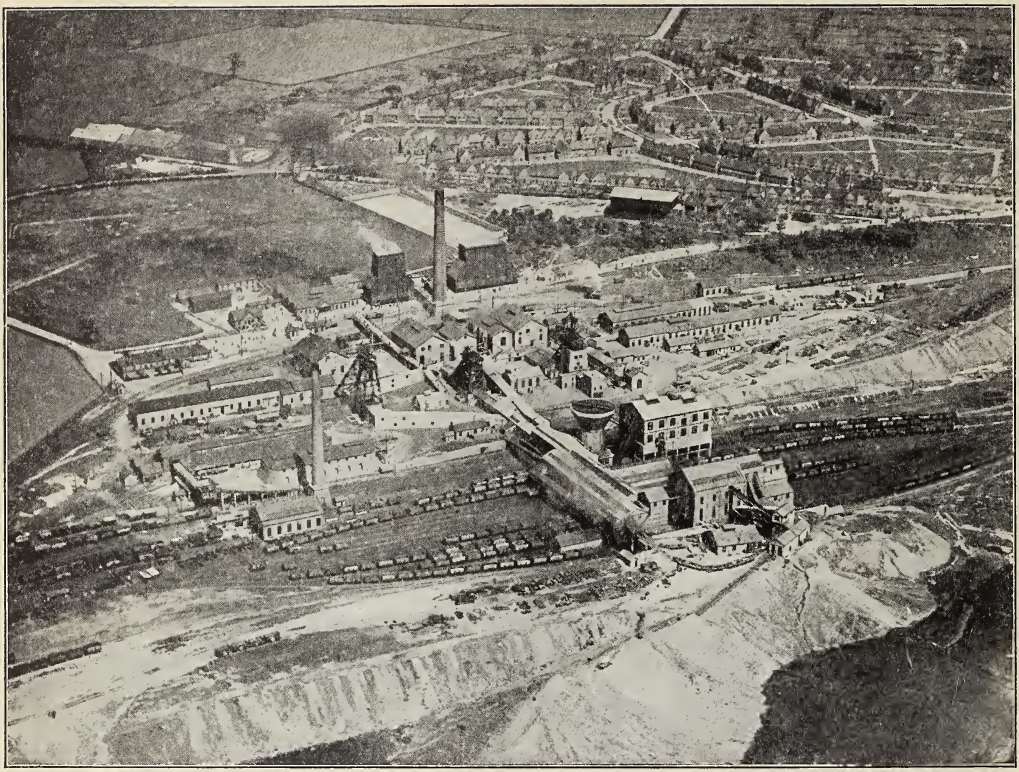


Figure 13

Trent, find the huge, jug-shaped kilns used for firing pottery. The white strips on the ground in Figure 16 are pieces of linen cloth spread out in the sun to be bleached. This picture shows a factory near Belfast (Fig. 11). What should you expect to find people making in it? The picture in Figure 17, taken south of Newcastle, suggests what industry? Sheffield is known for the manufacture of wares from iron and steel, and especially for the making of cutlery. You might see in Sheffield, besides the smelter and factories shown in Figure 18, iron and steel mills much like those in Figure 14. In each case, the district in which the picture was taken specializes in the kind of work suggested by the view. As you look at the dots for these cities on a map, then, what signs of work come to your mind in connection with each?

Birmingham is another city in which work like that suggested in Figure 14 is very important. In the Manchester and Leeds districts, as in Figure 16, you would see textile mills, but you would find that the chief work in and near Manchester is the making of cotton yarns and cloth, while the chief work of the Leeds district is the spinning and weaving of wool. Glasgow has been described as a combination of Birmingham, Newcastle, and Manchester. What kinds of manufacturing work, then, should you expect to find important there? Notice that only one of the districts here named is not on or very near a coal-producing area. Which one is it?

As these glimpses suggest, each important manufacturing district has its specialty, or, at most, a few specialties. Among the products manufactured, however, textiles and products of iron and steel are most common. These are, indeed, the most important two kinds of British manufactures. From this fact, you might expect that raw materials for such work are largely produced in Britain, but all of the cotton and much of the iron ore, wool, and linen for these factories must be imported. These "glimpses" probably have raised for you the following questions: (1) Why has one of the districts in which much coal is mined specialized in making cutlery, another in cotton cloth, and so on? (2) In view of the fact that materials for iron, steel, and

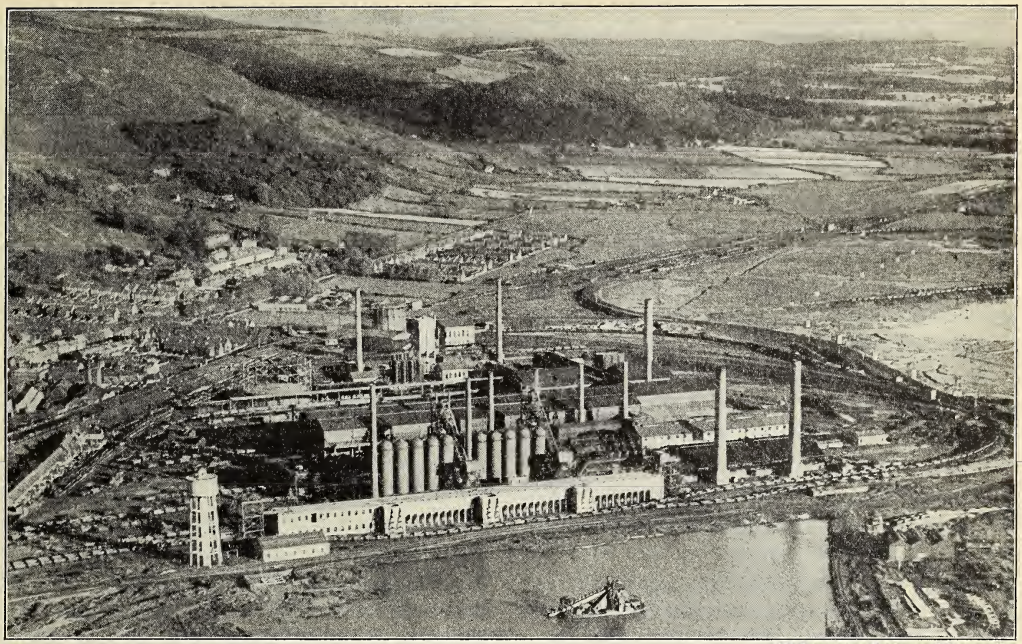


Figure 14

textile products must be imported, why has the manufacture of these products become so important? (3) In view of the fact that there are so many coal-producing areas, why is some manufacturing carried on in districts neither on nor very near a coal field?

As you study these districts in more detail, you will learn facts which will help you to answer these questions.

The South Wales District. — Notice on the map in Figure 11 that some of the cities and towns of southern Wales are on the coast, and that others are on the plateau north of it. All of the highland towns shown on the map are in valleys. Imagine looking down into one of these valleys. It is a deep, narrow gorge. Strings of dingy stone houses line the lower slopes. These are the homes of the miners. Near them loom ugly dumps and mine buildings, marking places from which men have burrowed into the valley sides for coal. A railroad follows along the valley, and hundreds of loaded coal cars may be seen moving down toward the coast, here and there meeting lines of " empties " on their trip up the valley for more coal, or perhaps a train bringing supplies from the coast.

There are many such valleys in the South Wales coal field. Indeed, nearly all the mining work of the district is crowded into these long, narrow gashes in the plateau, some of them a thousand feet deep. Village joins village in them, in long, crooked strings. If these valleys were not there, the plateau edge would make transportation to and from the coast much more difficult than it is. Much of the coal in this field is of an excellent quality, and some of it is a very hard bituminous variety called " steam coal." This kind is in great demand for ships because it burns readily, but with great heat, little waste, and little smoke. For the present, even the more valuable coal might be locked for the most part from human use were it not for the fact that abundant rainfall has supplied for ages past the water which, flowing swiftly down steep slopes to reach the sea,

has carved these deep valleys. Here, then, not only the work of mining but also the location of the mining villages, and even their shape, are related to the rainfall, slopes, and rock layers of the district.

Following the coal down to Cardiff, you would find that much of it is taken to great coal docks there, to be loaded on to ocean vessels. So many ships come from various lands to get this excellent fuel that Cardiff leads all the other seaports of the world as an exporter of coal.

By no means all of the coal which comes to the coastal towns, however, is shipped away. On the moors that lie eastward from the business heart of Cardiff stand blast furnaces, smelters, and mills and factories where iron and steel, tinware, and wares of copper, brass, and bronze are made. In Swansea (Fig. 11) one finds similar manufacturing plants. This port to the west of Cardiff is the chief center in Britain for the smelting of copper and of zinc, and in it are manufactured three-fourths of the tin plate made in the British Isles. Some of the ships that come to get coal bring iron ore, copper, tin, and other raw materials to be used in the factories of the district. Is it not clear that these coastal towns are convenient meeting places for materials brought by sea from other lands and coal brought by easy, down-grade routes from the valley mines?

Iron work is also important in some of the inland towns near the northeastern edge of the coal-mining district. It is not so easy to see at a glance why this is true, nor to see why ships that come for coal should bring materials for metal mills rather than for factories of other kinds. As in the case of New England, it is necessary to learn of some past conditions in order to understand certain kinds of work in southern Wales to-day. In early days, iron ore, water power, and wood for making charcoal used in smelting — all could be obtained readily along the northeastern edge of the coal field, and iron was smelted there at an early date. Later, when coke was used in place of charcoal for smelting, the industry continued to prosper, for good coking coal was mined in the plateau. Later still, when steel took the place of iron for many purposes, it was found that Welsh ores were not suitable for making steel, and iron ores were brought from northern Spain. It was then more economical in most cases to smelt the ore at the ports than it was at the inland towns. Some iron manufacturers moved their works to the seaboard, but others remained in the older centers in spite of the disadvantages there. To move their plants was inconvenient. Skilled laborers had become numerous in the inland towns, coal was mined near-by, and some kinds of iron work still could be carried on there with profit.

In early times, too, much tin and copper was mined in the part of England south of Bristol Channel (Fig. 11), and zinc was mined in southern Wales. Industries which used these ores developed, naturally, at the edge of the nearest coal field. Tin plates are thin sheets of iron coated with tin, and "galvanized" iron is iron coated with zinc. By reason of its iron industry, southern Wales could supply iron for such wares, and Welsh workers came to specialize in tin plate and galvanized goods. Their early start was very successful, and their products still are demanded in many parts of the world. Near-by mines now can supply only a small part of the copper, tin, zinc, and iron ores used in southern Wales, but ores mined in distant lands can be brought there cheaply enough so that well-established industries which use them can continue with profit. As you have seen, the district now has good ports and an abundance of cheap coal.

What reasons do you now see for the fact that coal docks, coal mines, furnaces, and metal-ware mills are important landscape features in southern Wales?

The Black Country. — In and about Birmingham, so many hundreds of factories, mills,

and furnaces belch forth smoke, and so much soot falls, that the district has been called the " Black Country." Birmingham itself sometimes is called " the Detroit of England." What kind of factories does that name suggest to you? Not only automobiles, but also locomotives and railroad cars are among the large products made there. Pins, needles, nails, pens, locks, and other small articles, chiefly of iron or steel, form another important group of wares made in the district.

In discovering why the district specializes in making iron, steel, and the two groups of wares mentioned in the preceding paragraph, you need, as in the case of southern Wales, to learn of its early work. Four centuries ago, iron ore mined in the district was smelted there, forests in the locality furnishing abundant fuel. Later, coal for coke could be had from two local coal fields.

When the local ores no longer met the needs of the mills and iron ore had to be brought from other places, Birmingham was handicapped by its inland position. It is not even on a navigable river (Fig. 11). It is, however, an important road and railroad center. Locomotives, railroad cars, and automobiles can be taken away " on their own wheels," and Birmingham is a good distributing center for all of them. It would not pay so well to make heavy, *cheap* goods of iron and steel there, because of the cost of bringing in the ore and of shipping out the bulky products. The cost of transporting expensive products such as automobiles and locomotives is small in comparison with their value. Cheap wares, also, if *small*, stand the cost of transportation better than articles that are cheap and *bulky*. The value, for example, of a carload of steel pens would be great in comparison with the freight charges. Do you not see, then, that the following four important facts help to explain the specialties of the Birmingham district? 1. It has local supplies of coal, and some iron ore. 2. The iron industry had an early and successful start there. 3. The district is inland. 4. Many roads and railroads center there.

The Pottery Towns. — Pottery making has been carried on in and near Stoke-on-Trent for so many centuries and it engages so many people there that the district has come to be known as " The Pottery Towns." Although pottery is by no means its only manufactured product, the district is more important than any other in Britain for pottery making and its work has helped much to make the British pottery industry greater than that of any other country in Europe.

After a visit to Stoke-on-Trent, one can scarcely forget the hundreds of dull, brick cottages, the clusters of jug-shaped kilns, and the long, low factory buildings with their many skylights (Fig. 15). Much light is needed for some parts of the work of pottery making, and numerous skylights are necessary in order to admit enough of it. In a trip through one of the many plants, you might watch workers mixing the clay, molding it into many shapes, tending the firing ovens, or adding designs to the once-baked articles. Here and there the land is scarred by open pits from which clay for coarse wares has been dug. Along the canal a part of which is shown near the lower left edge of Figure 15, you might see barges loaded with finer clay for making the better kinds of china. Much of the clay which is used in Stoke-on-Trent comes from a part of England near the southern coast of Bristol Channel. It is brought by sea to the Mersey River, and from the Mersey by canal (Fig. 11).

In early days, the pottery of the district was made by farmers, who dug clay for it from their own yards and used brushwood and, in later times, coal for fuel. Much of the land was rather poor, and so farming did not pay well. Although clay there was no better for pottery than that in various other coal fields, and although rough earthen ware was made in many parts of Britain, some of the early " farmer-potters " of Stoke-on-

Figure 15

Trent were so skillful and so successful that they gave up farming and became "master-potters." As time went on, potters there made several inventions, such as the use of salt in glazing, which added to the success of their work. Now great numbers of highly skilled pottery workers live in the district. When the industry came to need much fine clay, the inland position of these pottery towns proved a handicap. To help overcome this difficulty, the canal from the Mersey was dug. The *manufactured* products can stand the cost of shipment by *rail*. Why? The district has good rail connections with home markets and with coastal cities from which pottery is exported. Salt and lead for glazing are mined near-by, there is plenty of coarse clay at hand to be used for "baking boxes," and local coal for fuel is abundant.

Three textile districts. — People employed in textile mills form the largest group of factory workers in Britain. Most of the work of manufacturing linen is done in and near Belfast; four-fifths of the workers in wool live in West Yorkshire, in which Leeds stands; and nine-tenths of the cotton-mill workers live in Lancashire, the district containing Manchester and Liverpool. In Lancashire, in an area only some fifty miles square, are millions of workers whose cotton products form the most valuable single item of British manufacture and trade. Notice on the map in Figure 11 the name of the highland that lies between Manchester and Leeds.

The Pennine moors and many other uplands in Britain contain little or no good farmland, but afford excellent pasturage for sheep. In early days, wool for the making of cloth

was abundant, and the spinning and weaving of wool were widespread household industries. They were carried on not only on both sides of the Pennines, but also in many other parts of Britain. Thus early textile work was related to British pasture lands.

The making of woolen cloth flourished in Lancashire, then, before cotton manufacture. It is thought that the use of cotton fiber in combination with wool was introduced into Manchester by foreign weavers more than three centuries ago. At any rate, after the use of cotton fiber was started there about that time, the demand for goods which contained it grew so steadily that Lancashire spinners and weavers gradually turned their attention almost wholly to cotton. Probably cotton work would not have been introduced there when it was if the making of woolen cloth had not already been well established, and it would not have flourished if conditions had not proved favorable for it.

What have you learned about the location of Britain (p. 5) that explains why cotton is not produced in the islands? Much cotton used there comes from the United States. Which do you think would cost more, to deliver a given cargo of cotton from New Orleans to Manchester, or to deliver it to Leeds? Tell why. Moreover, the work with cotton proved to be less difficult in a moist, even climate than in a somewhat dry, changeable one, which tended to make the threads brittle. The climate of the western slopes of the Pennines is rainier and better suited for the work than that of the eastern slopes. With an early start in a location that thus proved favorable, the industry became important before the use of coal as fuel in factories.

Meanwhile, some special advantages for making woolen cloth had helped West Yorkshire to gain a lead over other districts engaged in that work. Much soft water is required in the washing of wool to be used in cloth. Many streams which flowed eastward from the Pennines not only furnished water of excellent quality for this purpose, but water power for the early mills. Much as coal-mining towns are strung along the valleys of southern Wales, so woolen-making towns crowd many valleys of West Yorkshire, where men could take advantage of this water supply and of valley routes.

Later, coal was found to be abundant in both textile districts and the cheap fuel it supplied helped the industries to keep on growing. In the course of three centuries they have colored the whole life and landscape of Lancashire and West Yorkshire.

To examine the cotton district, you might start at the wharves of Manchester or of Liverpool, where bales of cotton from the United States and other foreign lands are unloaded by modern machinery. Manchester has been made a seaport by the Manchester Ship Canal (Fig. 11). You might follow the cotton as it is taken by rail or motor truck to a spinning factory in a "spinning town" in the southern part of the district. There the fibers are cleaned, sorted, combed, rolled, twisted, spun, and made into skeins of cotton yarn. You might follow these skeins back to the Manchester market and see them sold for export or bought by a Lancashire weaver. The "weaving towns" are mostly north of Manchester. From the weaving towns, cloth may go directly back to Manchester for sale, or may go first to a "dye town" near the eastern edge of the district. Some of the cotton-goods packing companies in Manchester have sawmills of their own there, and the amount of lumber used for packing boxes alone is great. About four-fifths of all the cotton goods made in the district are sent to foreign lands.

Do you not see that the whole district is much like one huge factory, of which each town is a special part? One town spins only coarse yarns, and another only fine ones. One weaving town specializes in sheetings, another in shirtings, and so on. Manchester corresponds to the factory "office." The

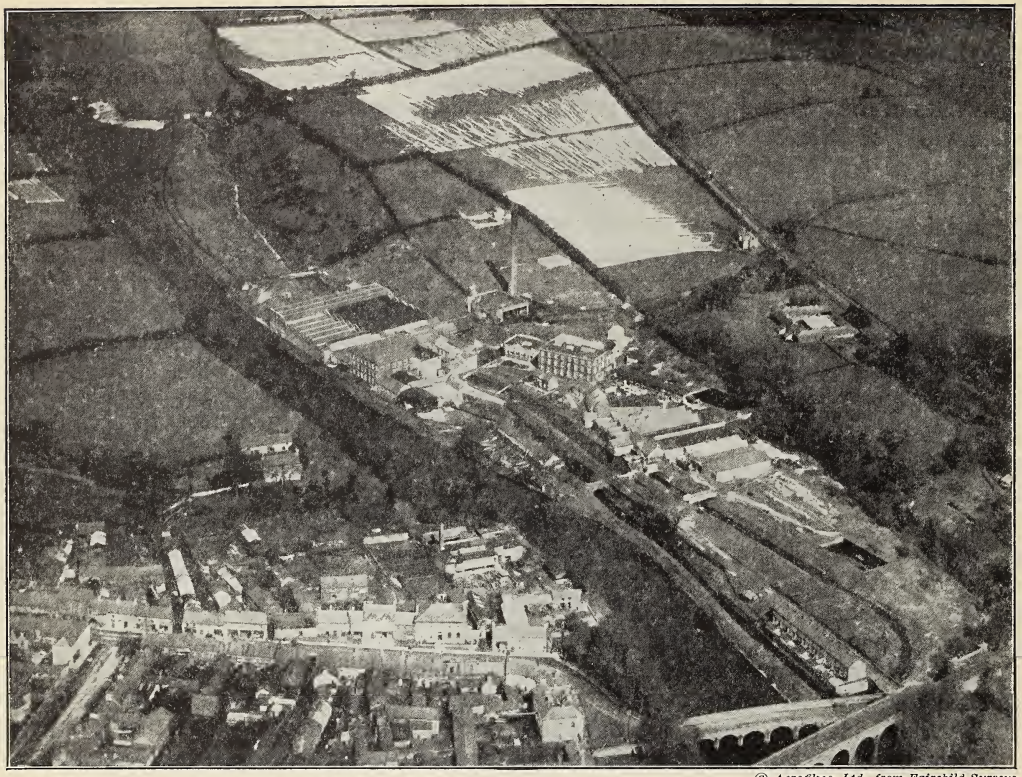


Figure 16

industry has become so well established that millions of workers, each skilled in some special phase of making cotton yarn or cloth, work together as they would in one great manufacturing plant. Into it the world sends raw cotton, and from it gets cotton cloth.

Many towns of West Yorkshire have woolen specialties. Bradford is famous for cloth called "worsted." Another town specializes in carpets, a third in cheap woolen goods, and a fourth in high-grade materials. There is no single city, however, in which the work is so much centered as is cotton work in Manchester. The fact that all the raw cotton has to be imported, while much wool is produced at home, helps to explain this.

The linen industry of Northern Ireland is closely related to farmlands. Flax is an important farm product there, and it supplied materials for a household linen industry in and near Belfast in early times. Moreover, spring water obtained in that neighborhood is of such excellent quality for bleaching that some linens made in other lands are sent there to be bleached. When, later, coal was used as fuel in factories, Belfast was at a disadvantage. However, coal was brought by boat from coal fields (Fig. 12) near the coast of southwestern Scotland cheaply enough so that linen manufacturing could continue there with profit.

Britain's textile industries, then, depended at the outset upon products of some of its pastures and farms and upon the needs of its people for clothing. The skill the people acquired in textile work and their abundant supplies of coal that could be mined cheaply made it possible for them to supply a greater

Figure 17

and greater demand from outside and to import from other lands raw material which their islands do not supply or do not produce in sufficient amounts.

Tyneside and Teeside. — On the map in Figure 11, find the district extending from the lower Tyne River to the lower Tees River. On a trip by boat along the lower Tyne, one finds that most of the Tyneside work is done on the narrow lowland strips between the valley bluffs. Here and there one sees trestlelike structures, called "staiths," from which coal brought from neighboring mines is dumped into vessels for shipment to other parts of Britain and to foreign lands. From the Tyne ports, more coal is shipped than from any other part of Britain except South Wales. Excellent coal occurs near these ports, and it can be brought to them cheaply.

About six centuries ago, long before the steam engine was invented, coal already was used in England for household purposes. In those days, however, mining methods were such that only coal which outcropped at the surface or which could be reached by digging shallow pits could be mined. Such deposits occurred near the Tyne River, and for several centuries nearly all of the British coal mined was "Newcastle" coal. Three centuries ago, some four hundred vessels were employed in carrying coal from the Tyne. The need for vessels that could be used in the coal trade created a local demand for ships, and several small concerns were started there for the building of wooden sailing vessels. These concerns were the ancestors of some of the great modern ship-building firms of the district. At first, British timber was used.

When it became scarce, timber was imported from Norway and other lands.

The building of steel ships there is, of course, a modern development in the industry. Coal for the purpose is at hand, and iron ore can be brought by water. Steel mills, shipbuilding yards, and shops for the manufacture of machinery, of locomotives, of engines for ships, and of huge guns are crowded into the Tyneside lowlands. The making of iron and steel and of large products from them is the most important work of the Tyne and Tees district. Figure 17 is a view in one of the yards where large ocean-going vessels are built of steel.

Middlesbrough (Fig. 11), the chief port of the Tees, is young as compared with most of Britain's manufacturing centers. A hundred years ago, there was no sign of the city. In 1850, an abundant supply of rich iron ore was discovered just south of the lower Tees. This soon came to be the leading iron-producing district of Britain. Iron ore, coal, and limestone, all produced within a few miles of one another, could be brought together cheaply at the place where the city now stands. Ocean-going vessels could bring in any other supplies needed, and take away the finished products.

On the Middlesbrough docks, the absence of warehouses is striking. Great electric cranes, built especially to handle large steel products, are used to load rails, bridgework, steel girders for buildings, large steel drainage and irrigation pipes, machinery, and other such wares directly from trains to ships.

What reasons can you now give for the facts that the district containing the lower Tyne and lower Tees is famous for the shipment of coal and for the making of ships and other *heavy* wares of iron and steel?

Sheffield. — Unlike Middlesbrough, Sheffield is a very old iron-smelting center. Iron ore has been mined in the locality from early times. At the outset, wood for charcoal was cut from near-by forests, and several streams which center on the city afforded water power which was used to drive the bellows at many early forges. The city is, as you have seen, on a producing coal field. There are local supplies of firestone, sandstone, and clay which are used in connection with the modern iron and steel furnaces.

Although, as in Birmingham, a great many kinds of iron and steel products are made in Sheffield, the city is best known for its cutlery. The making of cutlery was an early small-shop industry there, and even to-day Sheffield cutlery is made largely in little workshops by cutlers who send their products to large factories to be finished. Hard sandstone, excellent for use in grinding edges on tools and knives, is abundant in the neighborhood. By the time the local supplies of ore no longer met the needs of the cutlery industry and the other Sheffield iron industries, such work was well established there and it continued successfully, using much imported ore. Do you think that the cost of transporting cutlery by rail is large or small, in comparison with its value? Tell why.

In thinking again about the four iron and steel manufacturing districts that have been discussed, do you not see that in each case the industry has grown great in a place where iron ore is mined now, or was mined in earlier times, and in one where coal is produced to-day? What advantages do the iron and steel centers that are seaports have over inland centers? You should now be able to answer questions (1) and (2) on pages 12 and 13.

Work related to manufacturing. — Sheffield stands in the midst of green, thickly-wooded hills. Most of the main manufacturing section lies in the valley of a river which flows through the city, and as one looks across it from the neighboring hills, its many smokestacks give it somewhat the appearance of a black, dead forest amid the green woods thereabout. At night, the sky above it frequently is reddened by the glare of its fur-

Figure 18

naces. Figure 18 shows a small part of this valley manufacturing section in eastern Sheffield. The business heart of the city lies on higher lands south of the river, and on the hills near-by are pleasant residence districts such as that shown in Figure 19. To an American, the city may recall Pittsburgh in various ways, for it is a "city of steel" whose industrial section huddles along stream banks, while its fringes lie on attractive bordering hill slopes. Pictures much like that in Figure 19 might be taken in each of the other cities of the British manufacturing districts you have seen. Wherever hundreds of thousands of factory workers live in a city, there are, of course, many kinds of work to be done there besides manufacturing. In all of the larger manufacturing cities you would find wholesale and retail business sections and numerous public buildings, some of which are very attractive. The manufacturing work of Britain not only employs millions of people directly, but also helps to support hundreds of thousands of others who supply the needs of the manufacturers and factory laborers. Does not this thought help you to realize how important manufacturing work is to Britain?

Early starts and present advantages. — In thinking about questions (1) and (2) on pages 12 and 13, did you not come to the following three conclusions? (1) Some manufacturing districts in Britain have *at present* special, natural advantages for the particular kind of manufacturing which is of greatest importance in them. Middlesbrough is a striking example. (2) After a place has specialized successfully for a long time in a particular kind of manufacturing, it has gained a reputation for

Figure 19 © *Aerofilms, Ltd., from Fairchild Surveys*

products of that kind, its factory buildings and machinery are especially designed for that type of work, and many of its people have become highly skilled in it. Such work can then be carried on to greater advantage there than in places where *natural* advantages are as good or even better, but where these advantages which follow an early, successful start are lacking. (3) Some places are by nature about equally well fitted for various types of manufacture, but specialize in the kind or kinds which already had become established before the use of steam engines and coal in factories.

In Glasgow, manufacturing did not develop till this more modern period. Though an old town, it was in earlier times a place chiefly of commerce. After the improvement of mining methods, and after coal came to be used as fuel in factories, manufacturing of various sorts was started there in order to take advantage of the coal which then could be mined near-by. The making of iron and steel, the building of ships, and the manufacture of textiles all proved successful. No single industry had earlier become so well established as to give it a lead over others, and the fact that the port already had a thriving overseas commerce was an advantage in securing various kinds of raw materials. The growth of manufacturing in Glasgow in turn helped its trade to grow. In order to provide for the handling of its increasing trade, the city spent great sums of money upon the improvement of its river harbor (Glasgow, Fig. 240, p. 261). The story of Glasgow leads one to think that in several British manufacturing districts work would not be so specialized as it is if manu-

facturing had not been started in them before the age of the steam engine.

Manufacturing outside the coal fields. — Many places not actually on the coal fields of the British Isles can get coal at little more cost than that at which it can be had in the coal-mining districts themselves, for the islands are small, good routes of transportation are numerous, and the coal fields are widely distributed (Fig. 12). You have seen how the making of linen in Northern Ireland depends in part on coal from Great Britain.

Flour milling and sugar refining have centered in the great ports at which wheat and sugar are imported. It is cheaper in general to bring coal to these centers of land and water transportation and to distribute flour and sugar from them, than it would be to take wheat and raw sugar to the coal, and then to distribute the manufactured products from the coal fields.

Some raw materials and coal can be brought to every important port or inland transportation center of Britain cheaply enough to encourage some kinds of manufacturing there. Even in the historic city of Edinburgh (Fig. 11), famous chiefly as the ancient capital of Scotland, there are important industries. Printing, bookbinding, and mapmaking are among the chief ones. Edinburgh is the seat of a famous university and of the chief courts and government offices of Scotland. The city's importance as a center of learning and of government helps to explain its major industries.

You should now be able to answer question (3), page 13.

Very important manufacturing facts. — To summarize, five important reasons for the fact that so many millions of people in Britain make their living by manufacturing are the following:

1. Conditions in former times favored the early start of various kinds of manufacturing. 2. Some of the workers made inventions which greatly aided progress, and there have come to be great groups of skilled workmen. 3. The islands produce abundant coal for fuel. 4. Some of the raw materials needed are supplied in part by the homeland. 5. The commerce of the islands is so well developed that raw materials from many parts of the world can be obtained readily.

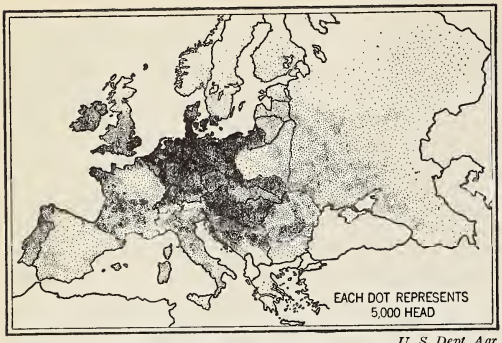
Further explanations. — It remains to explain why the people of the islands have been able to develop so great a commerce. In order to understand the commerce of a country, one first should know what the country produces and what products it needs from other lands. Thus far, only products of Britain's mines and factories and the needs of the factories have been discussed. It will be helpful to consider also the products of its farms and fisheries before trying to explain its trade.

The British Countryside

Farming and grazing lands. — As the maps in Figures 20, 21, and 22 show, much stock is reared in Britain and the Irish Free State. From what you learned about swine in *United States and Canada*, do you not associate them with farms rather than with grazing lands? What, then, does the swine map suggest about the Irish Free State and much of Britain? About northern Scotland?

Does sheep raising seem to be of greater importance in the Irish Free State than in Britain, or of less importance? In Figure 11, find the highlands of Wales, the Cheviot Hills, the Southern Uplands of Scotland, and the Grampian Hills. Notice these upland districts on the sheep map. As the comparison of the maps in Figures 11, 20, and 21 suggests, sheep are raised not only on many lowland farms of Britain and the Irish Free State but also on many upland grazing lands. The picture in Figure 23 was taken in the uplands of northwestern England, southwest of the city of Carlisle (Fig. 11). Had the maps already suggested to you scenes much like this one?

From what you have learned about sheep and cattle, for which should you expect to find the better, or lowland, pastures used? Why? The poorer, or upland, pastures? Is there more upland in Britain than in the Irish Free State, or less? This fact accounts in part for the greater importance of sheep in Britain. Does cattle raising seem to be of



U. S. Dept. Agr.

Figure 20. The distribution of swine

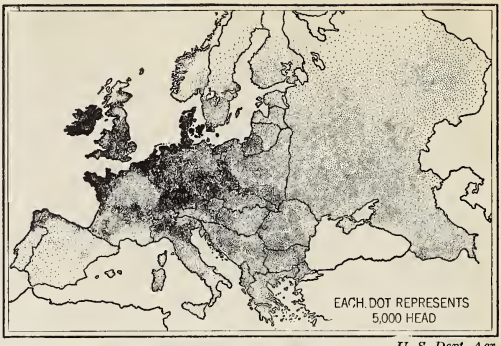


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Figure 22. The distribution of cattle

U. S. Dept. Agr.

Figure 21. The distribution of sheep

© Ewing Galloway

Figure 23

greater importance in Britain than in the Irish Free State, or of less importance (Fig. 22)? What reason can you suggest for this (Fig. 11)?

As one should expect, the parts of the British Isles that are more than 1000 feet above sea level are among those least used. Almost all of the farms are on lands less than 500 feet high, while lands between 500 and 1000 feet in height are used largely for grazing. Stock farming, dairy farming, mixed farming, and grazing are the more important kinds of work in the British countryside.

Stock and climate. — To see why stock raising on stock farms, dairy farms, mixed farms, and grazing lands is so important in the British Isles, you need to consider some facts about the climate of the islands. Do the British Isles receive much or little rainfall (Figs. 24 and 25)? As you looked at Britain on these rainfall maps, did you not suspect at once that winds there blow frequently from the west? Tell what suggests this. Much of the time they blow from the west or southwest. Which heats less in summer, land or water? Which cools less in winter? Winds which blow from the Atlantic across the British Isles temper the climate there. They make winter weather less cold, and summer weather less hot than that which inland places with the same altitude and latitude would have.

Even in view of winds from the ocean, however, the winter temperatures are milder than one should expect in this latitude. A great current of water called the Gulf Stream flows northeast across the Atlantic Ocean from the Gulf of Mexico. This current of water from warm seas spreads out before it nears Europe, so that it is hundreds of miles wide. In its wider part, it is called the North Atlantic Drift. Winds which blow across these waters carry enough heat from them to the British Isles and other lands of western Europe to make winters there milder than in many inland places much farther south.

Cool summers, mild winters, and abundant rainfall are all excellent for the production of grass. In spite of the high latitude of the islands, grass stays green throughout the year in some of the warmer parts, and in many places animals do not need to be housed in winter. Do you not see that the climate of the British Isles is well suited for stock raising?

Figure 24

Reproduced from Philips' Senior School Atlas, by permission of Messrs. George Philip and Son, Ltd., London

Stock and soils. — Find on the map in Figure 11 the long, low ridges in southeastern England called "North Downs" and "South Downs." The soils on these ridges lie upon layers of a rock through which water drains rapidly. On the upper parts of the ridges the soil is so dry that these slopes, although grassy, are used chiefly for grazing sheep. The pastures are not moist enough for cattle to thrive there.

In various parts of Britain and the Irish Free State, the soils are of heavy clay, so difficult to plow and drain well that they are little used for crops. Many such lands support good grass, however, and make excellent pastures, well-suited for cattle.

Intermediate between the heavy, wet clays and the light, dry soils are lighter clays, and rich loams which contain sand, clay, and particles of decayed plants and other fertilizing material. Such soils are good for crops. Important among the crops for which they are used are root crops such as turnips, swedes, and mangels, which make excellent food for stock. However, much land in Britain and the Irish Free State is better suited for permanent pasture than for any other use.

Manufacturing work and stock raising. — What have you learned about manufacturing work in Britain which shows that enormous quantities of food are needed there? Which can be shipped in good condition for long distances with less difficulty, grains, or fresh meat and milk? What reason does your answer suggest for the importance of stock raising and dairy farming in the British Isles?

Four reasons. — Have you not now found the following four reasons why the rearing of stock on various kinds of farms is the most important work of the Irish Free State and of rural Britain?

Figure 25

Reproduced from Philips' Senior School Atlas, by permission of Messrs. George Philip and Son, Ltd., London

1. Much land too hilly for farms is suitable for pastures or rough grazing land.

2. In many places in the islands soils support grass, but are too heavy and wet or too light and dry for crops.

3. The mild, moist climate favors the growth of grass and of various good stock-feeding crops.

4. Millions of people engaged in manufacturing need meat and dairy products.

Reading a new kind of map. — The wheat map of Eurasia in Figure 26 is much like the agricultural dot maps in *United States and Canada*. Notice, however, that each dot stands for bushels of wheat produced, not for acres of wheat land. Which part of Britain produces most wheat? In the new kind of wheat map in Figure 27, what shades of green do you find in that part of Britain? Notice the meaning of those shades in the legend. In the chief wheat-producing part of Britain, then, the wheat fields occupy from one-twentieth to more than one-fifth (in a small section) of all the land. Be sure that you see clearly how the map tells this fact, so that you can read other maps of this newer kind. Do you see that the map in Figure 27 helps you to picture the landscape more accurately than the dot map does, because it shows how the amount of wheat land compares with the total area of the district?

Crops of Britain and the Irish Free State. — The wheat of the British Isles is winter wheat. What have you learned about winters in the British Isles that helps to explain this fact? How do the maps in Figures 24 and 25 help you to explain why south-eastern England is better suited for raising wheat than are many parts of the British Isles? Summers in this part of England are not only drier and sunnier

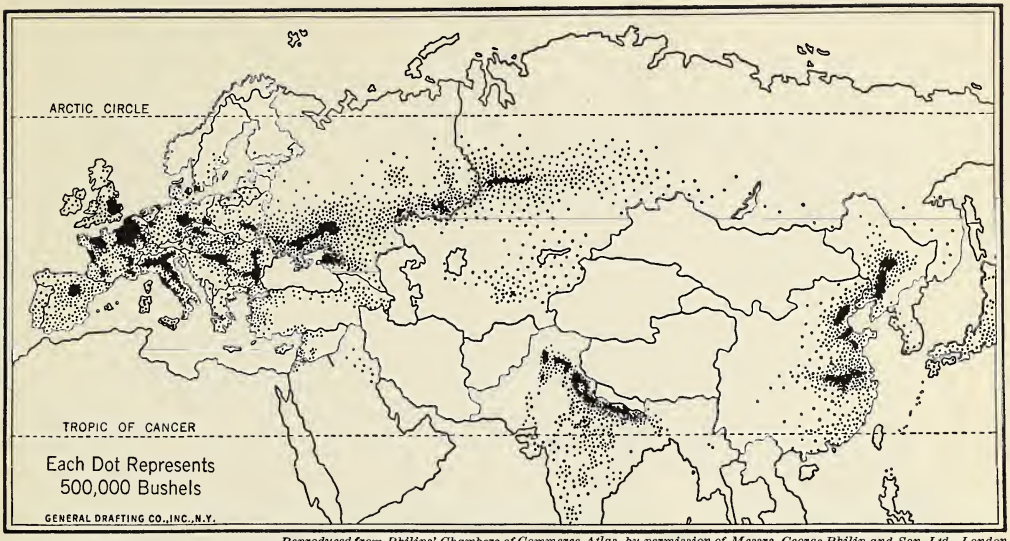


Figure 26. Production of wheat *Reproduced from Philips' Chambers of Commerce Atlas, by permission of Messrs. George Philip and Son, Ltd., London*

than in other parts of the British Isles, but also warmer. In most other parts of the British Isles summers are too cool, as well as too moist, for wheat to be a dependable crop.

What grain which is used largely to feed stock can best stand much cool, rainy weather? What grain crop, then, should you expect to find most widely distributed in Britain and in the Irish Free State? What does the map in Figure 28 show about the lands in the British Isles that are used for the crop you should have named?

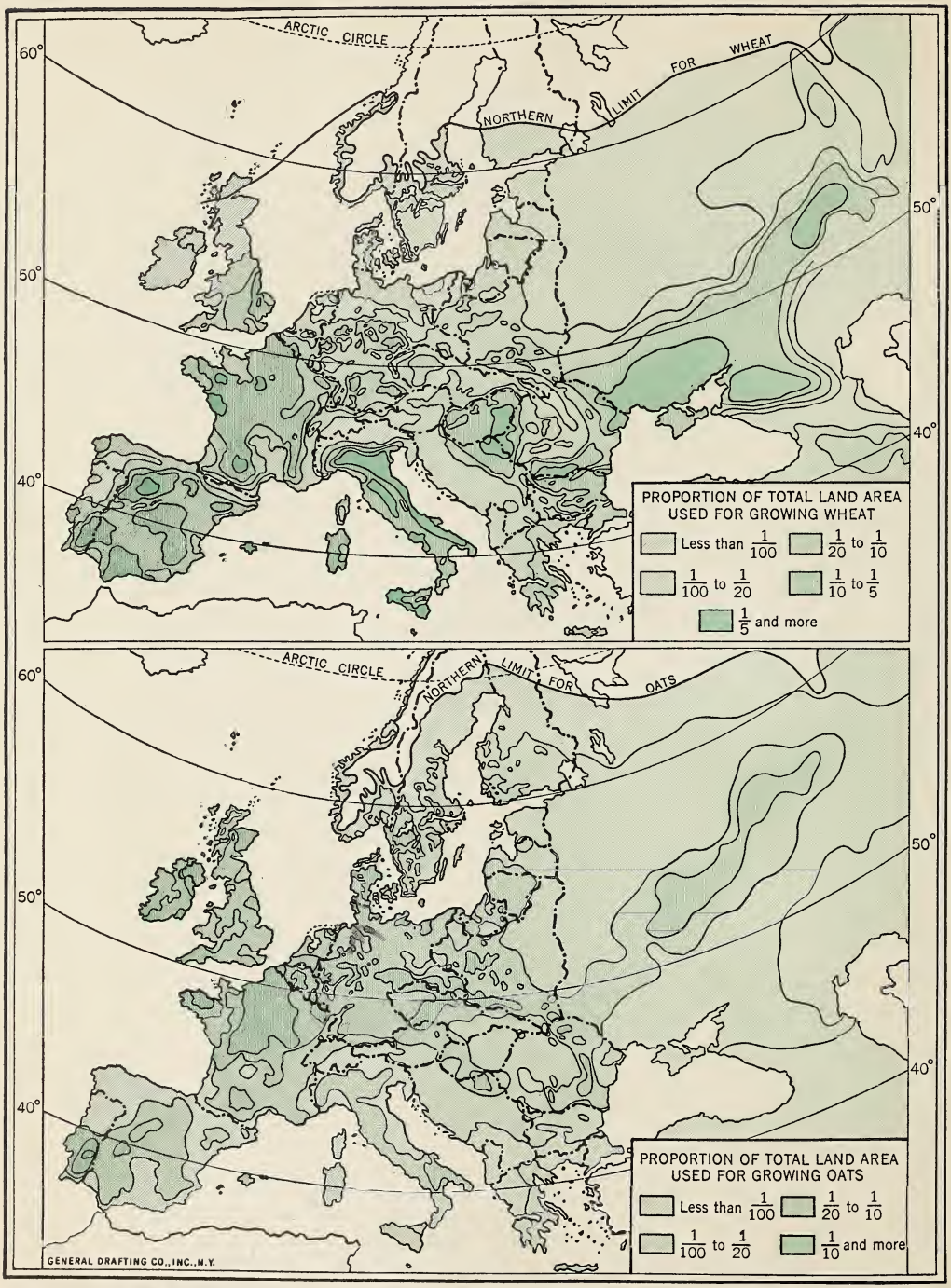
In areas of poor soil, as well as of cool, rainy summers, rye, as well as oats, is a common crop. What does the map in Figure 29 show about rye in the British Isles? The importance of wheat and the scarcity of rye together suggest, though of course they do not prove, that the soils of the British crop lands are in general good. Considering the cool summers, should you expect to find corn an important crop in any part of Britain or of the Irish Free State? Notice that only the southern part of Europe is shown on the map in Figure 30. In the part of Europe which is not shown, almost no corn is grown.

Various root crops, as you probably now know, thrive well in areas of cool, rainy summers. The acreage of the chief root crop used as human food is shown in Figure 31. What facts can you read from that map about potatoes in Britain and the Irish Free State? Other root crops, such as turnips, swedes, and mangels, are widely grown in the farming districts to feed to stock. It is common to fatten beef cattle on oat straw and turnips. It also is common to dig the roots and store them in shallow pits in the ground for use during the winter. Since in the British Isles feeding crops and methods differ from those common in the corn-growing districts of the United States, what farm building common in the latter would be much less needed in Britain? As you should expect, silos are rare in the British Isles.

What landscape views now come to your mind as you think of the Irish Free State? Of various parts of Britain?

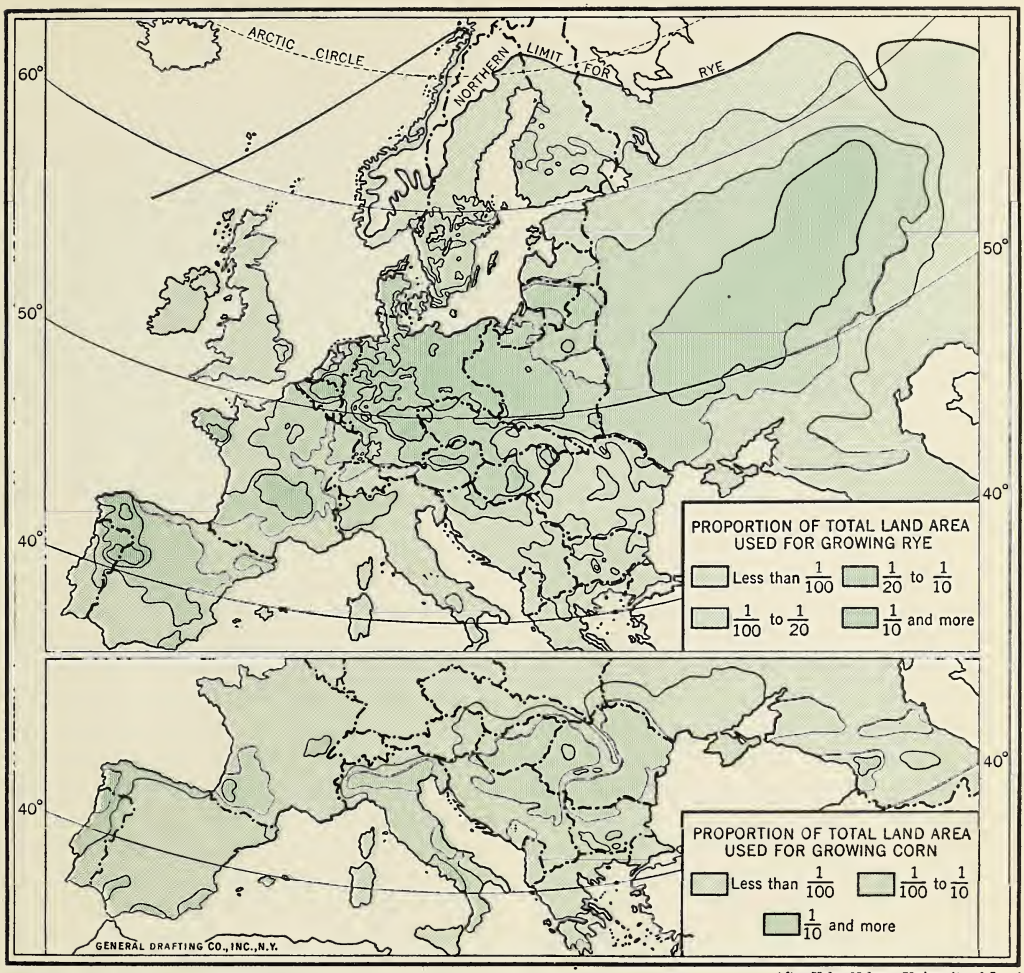
Farm diagrams for your notebook. — One of the farms described in the following paragraphs is in the lowland along the eastern coast of Scotland near Aberdeen (Fig. 11), one is in eastern England, and one is in Wales. From what you now know about farm lands in Britain, decide which paragraph describes each district.

1. Draw an oblong one inch wide and an inch and a half long, to represent a farm of 150 acres. Mark off in the oblong a strip one inch by one-fourth inch in size, to show the part used as permanent pasture. Color it lightly. In the other part print the words "oats," "barley," "turnips," "hay," and "pasture." The land used for oats one year is used for turnips or swedes a second year, for barley a third year, and for hay or pasture the next three years. For about seven months during the colder part of the year, oats, hay, turnips, and other food, are given to the stock, while during the other five months the



Figures 27 (above) and 28 (below)

After Helge Nelson, University of Lund



Figures 29 (above) and 30 (below)

After Helge Nelson, University of Lund

green pastures afford much food. During a year the farmer probably would sell from this farm about sixty sheep, seventy-five hogs, some twenty-five or thirty cattle, all his barley, and about half his oats. Because of the lateness of the harvest there, he commonly does not get as good prices for his grain as he would if it could go to market earlier.

2. Draw a second oblong one inch by five inches in size, to represent a farm of 500 acres. Mark off in the oblong a strip one inch by one-half inch in size, and color it to stand for permanent pasture land. In the remainder, print "oats," "hay," "wheat," and "potatoes." Much more of this farm is used for wheat than for any other crop, however, and wheat is the chief product sold from it.

3. Draw an oblong three inches by five inches in size, to represent a farm of 1500 acres. Mark off in the oblong a strip one inch by one-half inch in size, and print in it "hay." Color lightly the remainder to stand for hill pastures. The farmer sells in the course of a year about eight hundred sheep, three thousand pounds of wool, and a few ponies and cattle. What reason do you see for the fact that the sheep farm is larger than the other two farms?

Directions for reading. — From descriptions which follow, find other facts that will help you to

Figure 31. Acreage of potatoes *U. S. Dept. Agr.*

picture the appearance, life, and ways of the British countryside and to see reasons for them.

The chief work of the Irish Free State. — The Irish Free State has been called a land of "peat and potatoes." Peat dug from bog lands affords the fuel used in many homes, and potatoes are a staple food. However, as the maps already have suggested, the raising of cattle and swine is very important in the Irish Free State, and oats and hay are grown as commonly as are potatoes. Turnips are raised as a forage crop and barley is grown, largely for use in breweries. The area of land in permanent pastures is several times that of all the crop lands. The Irish Free State might be better described as "a rich, green land of pastures, cattle, oats, hay, potatoes, swine, and sheep."

In spite of much rich grassland and farmland, however, many Irish farmers have had a hard time to make a living. In early days, much land in Ireland was divided into large estates, many of which were owned by landlords who lived in England. In many cases, the tenant farmers have had to pay rents which they could not afford. Many signs of hardship are to be found even in attractive farm villages such as the one in Figure 32. Moreover, many farmers live in cottages which, like the two shown in Figure 33, are very poor. The hardships of the people have been due in large measure to the system of land ownership. Efforts now are being

Figure 32 © *Ewing Galloway*

made to overcome the handicaps that have resulted from the bad handling of rich lands.

You have seen that cattle raising is the chief industry of the Irish Free State largely because of the great amount of good pasture land. The grass of these Irish pastures is better suited for feeding young cattle than it is for fattening older stock for market. Accordingly many Irish stockmen specialize in the rearing of calves, which are later sent to Britain to be fattened. Near Cork (Fig. 11), from which products can be shipped readily to Britain, there are many dairy farms.

The trade and manufacturing of the larger cities of the Irish Free State, as well as its many farmlands, suggest that stock farming is the chief work of the country. Its trade is largely with Britain, of which it was a part for so long. The chief exports by value are cattle, beer, butter, bacon, eggs, pigs, sheep, horses, poultry, and raw wool. The value of the cattle exported is almost as great as the combined value of all the other exports mentioned. Notice that all but three of these products come directly from farms. Barley is used in the making of beer, and the butter and bacon are "manufactured farm products." The imports are chiefly coal, wheat, flour, corn, sugar, tea, clothing, boots, and shoes. Notice that the country exports stock-farming and dairy-farming products, and that among

Figure 33 © Ewing Galloway

its imports there are products of grain farming. As you should expect, milk-condensing plants, meat-curing houses, and leather works are important among its factories.

What now are your chief impressions of the Irish Free State?

Cattle rearing in eastern and western Britain. — As the maps in Figures 26 and 27 and the description of a farm, paragraph 2, page 29, suggest, wheat farming is very important in eastern England. Plowing, planting, cultivating, and harvesting work there are much the same as in the winter wheat lands of the United States. Root crops also are grown in the chief wheat district of Britain. They are planted in the spring, and harvested in the autumn or in the early winter. In the autumn, cattle are brought to many farms there from grasslands in Ireland and western Great Britain, to be fattened during the winter. Some of the cattle sold from the Scotch farm described in paragraph 1, pages 27, 29, doubtless had been imported from lands farther west. Many farmers in eastern Scotland and eastern England specialize in grain crops in summer, and in fattening cattle in winter.

The picture in Figure 34 was taken southwest of Birmingham. Pretty hedgerows and trees like those which border these pastures and fields are common in many parts of Britain. Most of the lands shown were in pasture. The fields near the lower right-hand corner were being used for crops, probably oats or turnips. Many farmers in this district specialize in the summer pasturing of cattle, for grass is at its best there between early spring and early winter. In the British Isles, many beef cattle begin their life in Ireland, are brought after a year or two to the grasslands of western Britain, and are later sent on, for final fattening, farther east.

Dairy farms. — Near the larger cities of Britain, there are, as you should expect, many dairy farms. Figure 35 shows a large dairy establishment in northwestern England, on the railroad between Carlisle and Newcastle (Fig. 11). Do you not miss silos? Do not the many buildings and the smokestack suggest that this is a "manufacturing" dairy farm? Why is it of special advantage for the dairy to be close to the railroad?

By no means all the dairy products of Britain come from special dairy farms, however. Along the country roads of many farming sec-

Figure 34

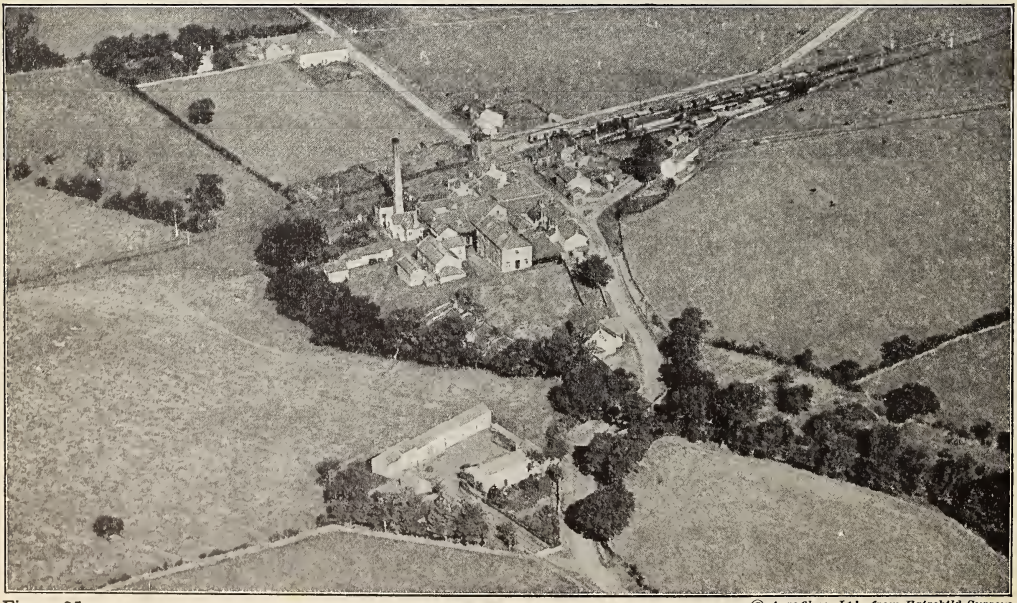


Figure 35

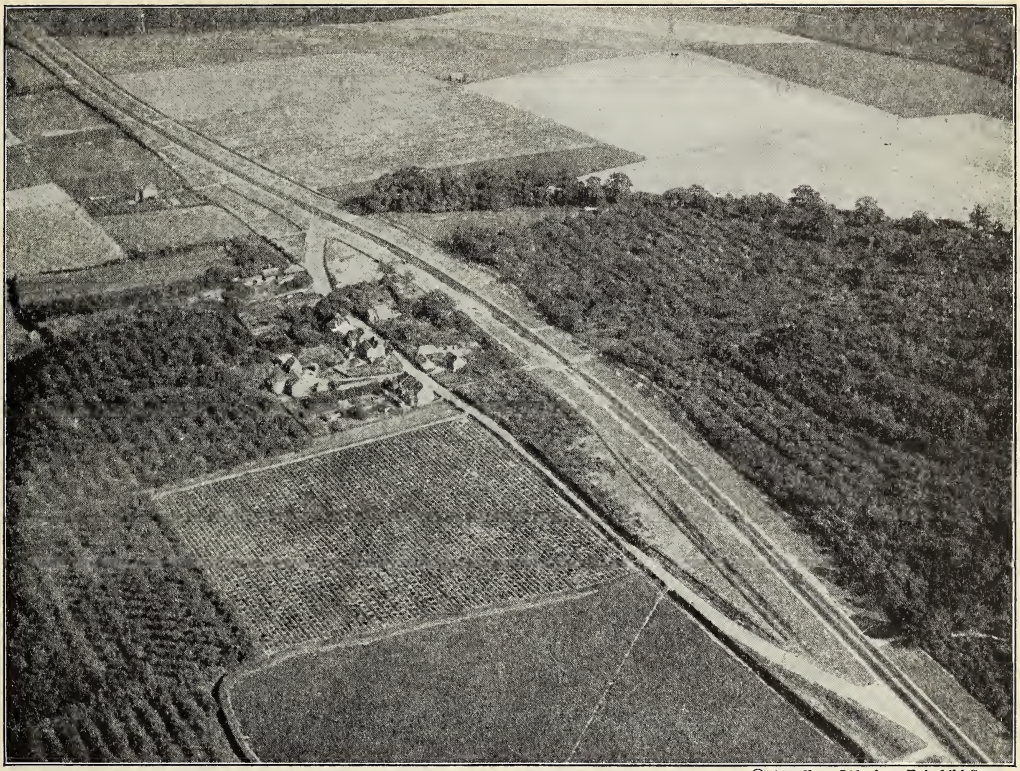


Figure 36 © *Aerofilms, Ltd., from Fairchild Surveys*

tions, one sees numerous wooden platforms on which the farmers set cans of milk each day to be collected by motor trucks and taken to the nearest dairy or shipping station.

The rearing of sheep. — Sheep work also varies in different parts of Britain to fit local conditions. East of the South Downs (Fig. 11), for example, there is a marsh district in which the rearing of a special breed of very hardy sheep is the most important work. Because they can thrive in wet lands and endure various other hardships, sheep reared there are in great demand in many parts of the world. Commonly lambs are kept in the district, however, only during the late spring and early summer, and are sent for the remainder of the year to the downs or other low uplands where conditions are less trying for them than in the marshes.

In Wales, on the other hand, where many upland pastures are much higher than those of the downs, it is common for flocks to spend only the summer in the highlands and to winter on lowland farms. Shearing is a part of the summer work in all the sheep districts. It is done in some cases by bands of traveling shearers. Shearing machines also are now common.

A mixed-farming district. — The picture in Figure 36 was taken southeast of London near the North Downs (Fig. 11), in a district famous for its grain fields, hop fields, orchards, and pastures. Many of the sheep which are pastured on the downs belong to farmers who till the lands near the lower slopes of these ridges. It is a common practice to bring sheep back at night from the hill "runs" to pens or fields on the farms. From the sheep

Figure 37 © *Ewing Galloway*

pens many farmers secure valuable fertilizer.

Can you see the shocks of wheat in one of the fields near the upper right edge of the picture? Notice the little farm hamlet, and the apple and cherry orchards near-by. The field in the foreground, next to the hamlet and to the left of the road, is a hop field. To support the hop vines, poles are set in the field and wires strung from one to another. The hops are picked in the early autumn. At picking time, people come from the surrounding countryside and from near-by cities to help with the harvest, and in the evenings the hills and valleys are dotted with their camp fires. Can you find, at the left edge of the hamlet, a building with a cone-shaped roof? It is an "oast" house, in which hops are dried. After the hops are picked, weighed, dried in the oast houses, and packed in sacks, they are sent to breweries to be used in making beer.

Flower and truck farming. — A surprising district is that which includes the Scilly Isles and part of the mainland near the southwestern tip of England (Fig. 11). On lonely, treeless uplands of southwestern England, moormen tend their scattered flocks, and in autumn gather coarse, dried bracken for winter fuel. Yet on the warm, south-facing slopes, the spring weather permits the growing of flowers and of vegetables, such as early potatoes, for city markets. In a recent year, 780 tons of flowers were shipped in one season from the Scilly Isles alone. Truck farming is a specialty in various other small districts where the conditions of soil and climate and the demand of near-by city markets favor the production of truck crops. Of all the various types of farming in Britain, this one is among the very few that are not concerned, at least in part, with the rearing of stock.

Farm buildings and villages. — Farmhouses in different parts of Britain range from old mansions built by rich landowners to mere hovels of one or two rooms. There are few wooden houses, for building stones or clay for brick are more abundant in most sections than timber is, and houses built of them afford better protection from the damp, chilly weather than frame houses would. Figure 37 shows the stone cottage of a sheep farmer in the highlands of Scotland. In many cases, however, especially where woods are near-by, brick and heavy timbers are artistically combined in "half timbered" houses.

Barns and other farm buildings differ from place to place with the needs of the farmers. In Scotland, for example, where winters are less mild than farther south, cow sheds are needed. In the grain lands, large barns are common in order to provide storage space for crops. In many cases, especially in the colder sections, barns, houses, and sheds are under the same roof.

In districts where most of the land is in grass and the farms are therefore rather large, the farmhouses are in many cases scattered. In many parts of eastern Britain, where most of the farms are smaller than those in the west, the farmhouses commonly are clustered to form little villages, such as those in Figures 10 and 36, round which the farms lie. A single landholder may own all the land farmed by the people of one hamlet. Indeed, much of the farmland of Britain is owned by wealthy landlords who rent it to tenant farmers. In general, however, tenants have fared better there than in the Irish Free State.

Intermediate between the hamlets and the large cities are settlements of various sizes. Market towns have grown in the farming districts at places where roads from several hamlets meet. To such towns the farmers go on the days set aside as special market days to sell their produce, and to buy supplies which their farms do not furnish.

Outstanding farming facts. — 1. If the farmlands of Britain had been settled as recently as those of the United States, the farms, the towns, and the customs of the countryside would all be more nearly like those in our newer land. They probably would be less interesting than they are, but on the other hand the conditions of the laborers probably would be better, and some of the farmlands might be better used.

2. The chief agricultural work of Britain and of the Irish Free State is the rearing of stock, and dairy farming is important in many districts. (1) The great demand in Britain for meat, dairy produce, and wool, (2) climate and soils which favor the production of grass and of forage crops for animals, and (3) an abundance of land best suited for pastures or rough grazing, account largely for these facts.

3. Oats are the most widely distributed grain crop, because they grow well in both the cooler, rainier parts of the islands and in the warmer, drier portions.

4. Wheat lands are chiefly in England, and in its drier, warmer, eastern part.

5. In spite of their good grazing lands and farmlands, not enough food is produced in Britain and the Irish Free State to feed all the people of the islands.

6. Farming furnishes the people, however, much food of the more perishable sorts, and some supplies, such as fine stock of many kinds, which can be sold to other lands to help pay for products which are imported.

Woodland and "waste land" earnings. — Even the rural lands not used for farming or grazing are by no means worthless to Britain. They afford vacation grounds or playgrounds for the people, many of whom are very fond of outdoor sports. Moreover, the British may be said to "sell" their scenery to foreigners again and again, for many of the tourists who come from other lands are even more eager to view, for example, the crags and lakes of the Scotch highlands than they are to see cities and farmlands. Some lands in this district are used for hunting preserves. They are watched over by gamekeepers, and, at certain seasons of the year, the owners hunt deer or other game in them, or sell to others the privilege of doing so. Deerhunting is a favorite sport in these highlands, just as foxhunting is in the western midlands. Parts of the *treeless* moors where deer live among the ferns and heather are called "deer forests."

Find on the map in Figure 11 the Caledonian Canal, which has been cut along a great valley through the Scotch highlands from Inverness to Fort William. Tourists who do not wish to tramp about in the mountains, where there are few houses except lonely shepherd huts and shooting lodges, may follow this lowland route through the highlands. The lower slopes are almost covered by woods, and heather grows on the higher mountain sides. In places, there are patches of bare rock. Barren peaks tower above the moors.

The Highlanders, though comparatively few in number, are as interesting as their highlands. Men and boys from the highlands form a famous part of the British army. They are known especially for their fighting qualities and their peculiar dress. Both of these are related to earlier life in the highlands. In days of old, Highlanders depended for a living chiefly on their herds of rough, shaggy, highland cattle, which they drove down to sell to the Lowlanders. They lived mostly in the valleys which afforded routes to the lowland. It was hard for them to go from valley to valley. Each valley came to have its separate "clan" and its chieftain. Each

Figure 38 © Frith, from Oroc

member of a clan had the same last name, such as MacDonald or MacGregor. Their dress was not like that of the lowland people. They kept their knees bare, for this made it less difficult for them to climb. They used plaid cloth in their kilts or short skirts. Each clan had its own pattern or plaid, woven from the wool of highland sheep. Their life in the highlands was full of danger and hardship. They became a brave, strong people. When times were hard, they made raids upon their neighbors for supplies. Many stories have been written of early highland quarrels, and of later struggles between the Highlanders and the English. Now the Highlanders are as loyal to Britain as in the old days they were to their clans and chieftains.

Since it still is hard to make a living in the highlands, many of the younger people leave them each year to find work in other places.

The mountainous district of northwestern England, known as the "Lake Country," is another famous tourist district. Figure 38 suggests the beauty of the scenery. There also is much loveliness in Wales and in the Irish Free State.

In the woodlands, there is no longer much logging being done. Some firewood still is cut and one may now and then see men at work felling old trees, cutting the felled timber into short lengths, grubbing out stumps, or planting young trees. An occasional woodmen's camp and the lodges of the gamekeepers are practically the only habitations of the woodlands of the British Isles.

The Fishing Industry

Chief fishing grounds and ports. — The fishing industry engages thousands of men in Britain and in the Irish Free State, and provides great quantities of food for use at home and for sale abroad. The chief fishing grounds are in the North Sea and in the waters just south of Iceland. Of somewhat lesser importance are the grounds south of Ireland and those near the Faroe Islands (Fig. 8).

Fish are landed at more than one hundred fifty places along the shores of England and Wales alone, but the chief fishing ports of the British Isles are, as you might well expect, on the eastern coast of Great Britain. Find on the map in Figure 11, Aberdeen, Hull, Grimsby, and Yarmouth, the most important four.

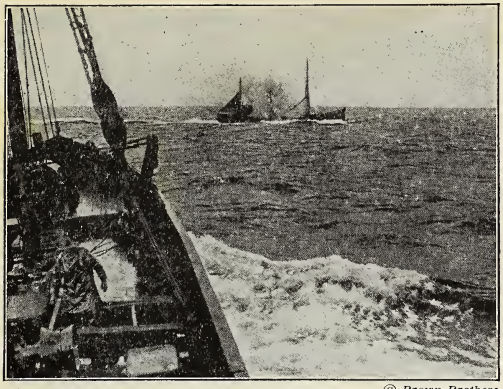


Figure 39 © *Brown Brothers*

Trawler work. — The first three of the ports named are "trawler" ports. Nearly all of the trawlers now in use are steam vessels much like those in Figure 39. They carry trawl nets, shaped somewhat like wide-mouthed funnels, and so weighted that they will sink and can be dragged along the bottom of a shallow sea as the vessels move. They are used in catching such fish as cod and haddock.

To see the fishing work at a trawler port, you might visit Hull. You would find two of the large docks along the lower Humber used altogether for work connected with that of the trawlers. Refrigerated cars are run on to the quays alongside which the trawlers dock, so that fish can be unloaded directly into them. Special fast trains carry the fish to the larger inland markets. What does the map in Figure 11 show about Hull's railroad connections?

Not all the fish landed is sent fresh to market, however. You might see rows of platforms near the fish quays, on which cod is being dried, and factories for the making of fish oil and fertilizer.

After a trawler is unloaded, it is brought alongside other quays where it receives coal, ice, and food supplies. North Sea trawlers commonly take provisions for a stay of about a week at sea. The larger Iceland trawlers carry supplies enough to last three or four weeks. How do you explain the difference?

Drifter work. — At some fishing ports, "drifters," as well as trawlers, may be seen. Yarmouth is the chief port for drifters. These vessels are smaller than most of the trawlers, and much less numerous. They carry drift nets for catching fish, such as herring, that live near the surface of the water. Most of the herring catch is pickled or cured for export. Since herring are caught chiefly in summer and in early autumn, the fishing work at drifter ports is seasonal. Fortunately, however, the herring season is at its height earlier along the Scotch coast than at Yarmouth. Great numbers of Scotch girls who are skilled in the preparation of herring for export find work in the fishing towns of Scotland in summer, and then go to Yarmouth during the early autumn.

Fishing villages and seafarers. — In the days before large vessels were used in fishing, the industry was distributed much more widely than now among the coastal towns. From the many quaint old fishing villages have come thousands of men well trained in the ways of life at sea. The fishing industry of Britain, then, not only has provided much food, and work for many people, but also has helped the British to become famous as a seafaring people.

A Great Trading Country

The need for trade. — You have now seen how, in taking advantage of the great coal resources of their country, British manufacturers have needed much raw material which Britain cannot supply, and so have had to depend much on trade with other lands. Manufacturing and trade have each helped the other to develop in Britain. Its great possibilities for manufacturing have made the need for trade great. Moreover, as the manufacturing and trading population increased, more farm products were needed for food than British farms supplied, and food had to be imported. Furthermore, many kinds of food

which the people wanted cannot be produced at all in Britain. Such facts explain the *need* for trade, but it remains to see some special advantages which Britain has for such work.

Three advantages for early trade. — Trade, like manufacturing, had an early start in Britain. British trade was important long before the age of modern factories and of dense populations. Important among the natural advantages of the country for trade in early times were: (1) the narrowness of the seas between Britain and the mainland; (2) its many good harbors; and (3) its location on islands.

1. On the map in Figure 8, find the English Channel, the Strait of Dover, and the North Sea. About how wide is the North Sea in its widest part? About how wide is the Strait of Dover? In good weather, a fast steamer can cross the strait in a little more than an hour. Should you not think, then, that even in the days of small sailing vessels, the continent could be reached from Britain without great difficulty? Recall, moreover, the fact that fishing work had accustomed many men to making sea voyages. The British could get from the continent some supplies which they did not produce at home, in exchange for products from their mines, fisheries, farms, and workshops.

2. You have seen in your study of *United States and Canada* (p. 270) why ocean ports tend to develop as far inland as ocean-going vessels can come, rather than as far out to sea as land extends. In Britain, with its abundant rainfall, many rivers afford highways navigable for sea-going ships for considerable distances upstream from the river mouths. Notice that many of these rivers have very wide mouths, or "estuaries" (Fig. 11). Furthermore, changes which occur during each day in the level of the waters near the coasts of Britain are greater than the changes which occur near most other coasts. Such changes are called "tides." At high tide, the water rises in the lower parts of these rivers, making them navigable for boats larger than the largest which can come upstream at low tide. Such rivers furnished excellent harbors which are well inland. Goods from many parts of Britain could be brought to such harbors with a shorter, less expensive land trip than would have been required to take products to the coast.

Not all the ports of Britain, however, grew at places far inland. Aberdeen, Scotland, for example, developed near the coast (Fig. 11). The name of the city means "near the mouth of the Dee." Though the estuary of the Dee is not long, it affords a good harbor, located conveniently to serve the part of Scotland in which it lies. Figure 40 is a view of a part of this harbor.

3. The following story illustrates the third advantage. Considerably more than three centuries ago, Philip the Second of Spain, who was then the strongest king in Europe, decided to conquer England. He planned to transport a great army from the Netherlands for the purpose. In the waters near Britain, the Spanish fleet which was to carry this army across the North Sea was damaged by British ships, manned in part by hardy fishermen. The Spanish army in the Netherlands did not reach England, and on the way home many of the remaining Spanish ships were wrecked by a great storm.

Other somewhat similar stories might be told. Through centuries, the seas have aided in keeping out Britain's foes. As a result, then, of living on islands, the British were disturbed less often by outsiders than were most of the mainland countries, with their land borders. In their protected islands, the British kept steadily improving their ways of work, and the better they worked, the more material they had for trade, and the more their trade grew.

Of course, since the British lived on islands, any trade which they carried on with other countries had to be carried on by sea. Living near a rich mainland, on rich islands

Figure 40

By courtesy of the London and Northeastern Railway

having many good harbors, was an aid to Britain, then, in developing trade at an early date.

Three advantages for later world trade. — 1. *The early experience which the British had in trading by sea* with the near-by mainland was of great advantage to them when later it was possible to make longer sea voyages. By that time, they already had many ships, and many men skilled in the ways of sea trade and in the management of merchant vessels.

2. As time went on, *the settlement of many British people in new and distant lands* also aided in the growth of Britain's trade. Some of the men who went on long trading voyages found that there were unworked minerals, for example, in far-away, unsettled places. Mines accordingly were opened up there by the British, and some of the products from them were sent to Britain to be used. Some lands in which many British people settled became British colonies. In many of them various things needed in Britain could be produced, and in opening up new lands, settlers had need for many materials from Britain. Do you not see how the settling of new lands by the British helped Britain's trade to grow? British merchant vessels carried goods from them not only to Britain but also to many other countries.

3. *The location of Britain is very favorable for world trade.* On a globe, find sea routes from Britain to each of the continents. Recall that the Indian Ocean can be reached from Britain by way of the Suez Canal. Find routes from New York City to each of the continents besides North America. Which seems most centrally located for world trade, New York City, or the British ports? In a similar way, compare the location of British ports with that of San Francisco. If you were to make such comparisons between the ports of Britain and those of many other countries, you would see that there is no place on the globe which is better located than Britain is for trade by sea with a great number of lands.

What six advantages for the growth of Britain's trade can you now state?

Explanations. — In view of what you now have learned about Britain, which of the following facts about its trade can you give reasons for? For each fact that you name, state as many reasons as you can.

(1) The four chief imports, by value, are

meat, grain and flour, raw cotton, and raw wool. (2) The four chief exports, by value, are cotton manufactures, iron and steel manufactures, coke and coal, and woolen manufactures. (3) The ports of Liverpool, Glasgow, Newcastle, Cardiff, and Middlesbrough all export more, by value, than they import.

Is not meat the only import mentioned that surprised you? In part because of the early and abundant supply of meat, the British formed the habit of eating much meat, and, in spite of the large amount produced there, much is imported. Moreover, some of the imported meats are produced in the British Isles, for meat received from the Irish Free State is included under Britain's imports.

In thinking about the third statement, did you consider (1) the coal exported from Newcastle and Cardiff, (2) the great amount of manufacturing done in and near each of the five ports mentioned, and (3) the fact that manufacture adds much to the value of materials?

London, Hull, and Bristol (Fig. 11) each imports, by value, more than it exports. Notice that only one of these three cities is on or very near a coal field, as is each of the five "exporting" ports.

The value of *all the materials* imported into Britain is greater than the value of *all the materials* exported from the country. Not all of Britain's exports, however, are *materials*. Some of its exports are "invisible."

Invisible exports. — The British do for other lands various kinds of work for which they receive pay. All the trading vessels that are owned by a country are spoken of as that country's "merchant marine." Britain has much the largest merchant marine in the world. Many countries do not have enough ships to carry the products they send to other lands or receive from them, and so they pay British ships, or the ships of other people who have large merchant marines, to carry these cargoes for them. This carrying work may be thought of as an "invisible export" of Britain, for the British exchange this work for money or supplies from other lands.

There are other invisible exports which are not so easy to understand as the carrying work just mentioned. For example, much money is needed for the building of railroads, bridges, wharves, and other improvements in newly settled lands, and people in undeveloped regions seldom have enough money for such work. British banks have loaned money for it, and have charged the people who used the money, interest or rent. In other words, they sell the use of money which they have earned in other kinds of work. If the British exports that cannot be seen were added to the visible ones, the total would be as great as, or greater than, the imports.

Britain's second largest port. — Of all the British ports, Liverpool exports more than any other and imports more than any other except London. These two ports alone handle more than half of Britain's enormous trade. Do you see how each of the following facts helps to explain the greatness of Liverpool's commerce? (1) The lower Mersey River affords an excellent harbor. (2) It is located on the side of Great Britain nearest the United States, from which much cotton and wheat is imported. (3) It is more nearly central in its location with regard to other parts of Britain than is any other west-coast port of Britain. (4) Its rail connections with many parts of Britain are excellent (Fig. 11). (5) It is in one of the more important manufacturing districts of Britain.

After seeing many of Britain's lands, and these reasons for Liverpool's great commerce, one can easily explain, in part at least, many landscape signs in Liverpool, and various facts about the work of the city.

The east bank of the Mersey at Liverpool is lined for some seven miles with docks, such as those in Figure 9, and docks also extend along the west bank for about two miles. When one sees the freight that is handled on a single quay, and thinks of the many busy

quays along the river, he begins to have some idea of the vast quantities of materials handled at this port. Grain elevators, cold-storage plants for meat, oil tanks, and warehouses for rubber, cotton, and other goods, suggest some of the leading cargoes handled there. As one might expect, raw cotton is the most important single item unloaded at Liverpool, and cotton goods a very important item which is loaded on outbound boats. Indeed, raw cotton and cotton goods together make up about a third of all the freight handled at the port. Liverpool is the greatest cotton-market city in the world. One of the buildings in the part of the city shown in Figure 9 is the Cotton Exchange.

When the Manchester Canal was dug it was expected that most of the raw cotton would be brought on to Manchester, because that city is nearer most of the cotton mills than is Liverpool, but only about a fifth of the cotton that comes to the Mersey ports is brought by ocean boats directly to Manchester and only about a fifth of the cotton goods shipped away is loaded on outbound boats there. The fact that Liverpool continues to hold so much of the trade is due in large measure to habit, and it again illustrates the advantage of an early start. The more one sees of the work of Liverpool, the more he realizes the importance of trade not only to the city itself but to all Britain.

The Heart of the Empire

The world's largest city. — Greater London, with a population of about 7,500,000, is the largest city in the world. Within its limits dwell more than one-fifth of all the people of England. As a railroad center, seaport, trading place, manufacturing city, and financial center, London ranks first among British cities. It is the capital of Britain, and the very heart of the British Empire.

From river ford to world metropolis. — The fact that the Thames River could be forded at a point opposite the place where Westminster grew ("1," Fig. 41) seems to have given the site of London its first importance. Between the site of the city and the sea there was no good crossing place, for the river was everywhere wide and deep and was bordered by low, marshy land. To make the passage of the river easier at all times, a bridge was built across the Thames at a comparatively narrow place a short distance below the old ford, where, on the north side, there was fairly high and dry land near the water's edge. People coming to England from the continent naturally crossed the rough waters which lie between the mainland and the island where they are narrowest. Where is this? From the Strait of Dover a much-used road led northwest, north of the North Downs, to the crossing place on the Thames, whence travelers could proceed in various directions. So London Bridge ("2," Fig. 41) became a meeting place of land routes, a center from which roads were built in all directions into the surrounding country. The Thames itself was a great road leading to a narrow part of the "narrow seas," beyond which lay countries with which England came to have a large trade. Since the ships that came up the river could not pass London Bridge, they were unloaded and loaded just below it. Accordingly London, bridge town and road center, became also a seaport. Because of its advantages for gathering and distributing goods, London many centuries ago outgrew all of its rivals and took its place as the center of the trade of England. Since roads came to it from all parts of the country, it was the most convenient place for the capital. When railroads were built, they naturally focused on London, since it already was the greatest road center, the chief seaport, the commercial metropolis, the capital, and the largest city of all England. Figure 11 clearly shows that London is still the great center of the British railroad system. As the population, trade, and wealth of London grew, certain advantages for carrying on manufacturing

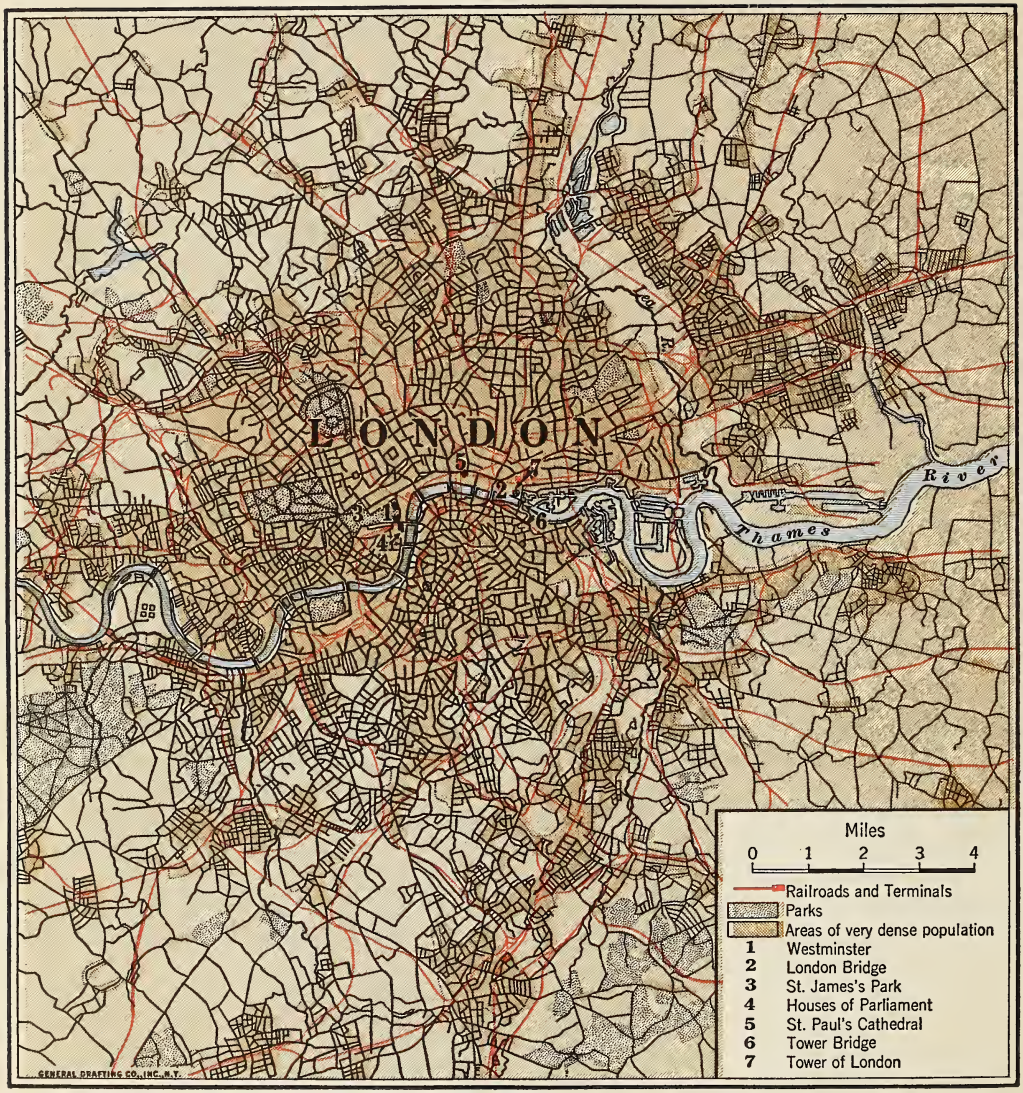


Figure 41

there also increased. What were these advantages? In addition to all its other activities, the city accordingly became a huge workshop. The development of London from a mere hamlet at the crossing of the Thames River into the mighty city of to-day occupied nineteen centuries.

London fogs. — Many visitors think that London is a gloomy city. Much of the time it is covered by a canopy of smoke formed by the outpourings from the smokestacks and chimneys of myriads of factories and houses in which coal is burned to develop power or for heating purposes. This smoke cloud is

Figure 42

of course thickest in winter, when most coal is burned. The smoke in the air is partly responsible for the dense winter fogs which, perhaps for days at a time, shroud the city and interfere seriously with street traffic. Ceaselessly soot settles from the air, giving the buildings a black hue, and causing much discomfort.

Buildings, streets, and people. — Most of the buildings in London are of brick and cement, as you should expect (p. 34). Most of the dwellings are small, and even in the newer outskirts of the city, thousands of similar cottages face hundreds of similar streets.

Some of the streets of London are wide, but most of them are narrow and crooked, as suggested by Figures 42, 43, and 44. As the map in Figure 41 shows, there is no general street plan. The city spread over the countryside, absorbing scores of suburbs, each with a street pattern of its own. Even the main roads which radiate from the city are no wider than they were a hundred years ago, and year by year the traffic in them becomes more dense. The buildings and ground which front many of the narrow streets in Central London are so valuable that probably those streets never will be widened; the expense would be too great.

For many years the population of Central London has decreased, while that of Outer London has grown rapidly. Dwelling houses were displaced in the heart of the city by business structures, and great numbers of people were forced to move away. Better transportation and the increased use of automobiles helped to make it possible for people to live farther from their work. Each morn-

Figure 43 © *Aerofilms, Ltd., from Fairchild Surveys*

ing hundreds of thousands of workers journey from their homes in Outer London and its suburbs toward the center of the city, and each evening they pour outwards in all directions. Some years ago the total number of journeys made *daily* in Greater London by surface and underground railroad, street car, omnibus, cab, and private automobile was more than six million.

The West End. — Find St. James's Park on the map in Figure 41. The view in Figure 42 was taken from an airplane above the eastern end of the park, looking northward. The large building touching the lower right-hand edge of the picture is a government building. Other government office buildings extend to the south of this one, and along the eastern side of St. James's Park, as far as the Houses of Parliament ("4," Fig. 41). The West End of London, well represented by much of this picture, is in general the section of fine residences, fashionable shops, brilliant theaters, famous museums and art galleries, lovely parks, and imposing public buildings. A great capital city always is a center of learning, art, and wealth. In the case of London, these things are found chiefly in the West End, where, centuries ago, government houses and the royal palace were built near the river, above the reach of commerce. For some distance below the Houses of Parliament you would find along the Thames, not docks, warehouses, and factories, but a famous boulevard, the Victoria Embankment, green with its trees and gardens. Probably you would notice that the air is purer and the view clearer in the West End than it is in the East End, partly because fewer factories belch

forth their smoke and partly because the winds there blow mostly from the west and tend to carry the smoke eastward.

The business center. — In Figure 43 you are looking northeastward over part of the historic center of London where stood the ancient town that grew up around and near the northern end of London Bridge. The huge building whose gigantic dome towers high above the ocean of roofs is St. Paul's Cathedral, perhaps the best known landmark in all London. Find the position of the cathedral on the map in Figure 41. Notice in the picture the towers of other churches which here and there also rise above the general level of the crowded buildings. The homes that once surrounded these churches long since gave place to business houses. Each week day more than a million people enter the "City," as the business heart of London is called, but each night it is deserted, save for watchmen and caretakers. Business is everywhere. Every British insurance company, every banking concern, every shipping organization, and almost every important business has its main office in the "City." Here is the center of the commercial and financial life of the British Empire.

Firms of a given kind are likely to be found in a particular locality in the "City." Thus on certain streets near the upper right-hand corner of the picture almost every building is a bank, while nearly all the newspapers of London are published on or near a street somewhat beyond the lower left-hand corner. What advantage do you see in such grouping? Perhaps you already have noticed that none of the business structures in Figure 43 is very tall. The "skyscraper," so common to the business sections of larger American cities, is unknown in London, where a building with as many as nine or ten stories is exceptional.

The East End: Dockland and Factoryland. Figure 44 is a view looking northeastward across the Thames between London Bridge and Tower Bridge, which appears at the right. Find Tower Bridge on the map in Figure 41. At the bridge the "City" meets the East End, the land of docks and factories, of sailors and foreigners. Just above the bridge on the farther shore you can see the Tower of London ("7," Fig. 41). Here at the southeastern corner of old London a stronghold was built many centuries ago to protect the city against enemies who might come up the river. The present structure, itself centuries old, was for long a place of confinement for prisoners of fame, and at times a royal residence. The grim old fortress now contains hundreds of curiosities, and is preserved because it is so rich in history and legend. Just below the bridge on the farther shore you can see St. Katharine Docks, and beyond, at the edge of the picture, part of London Docks. They look like great ponds, and are walled in by giant warehouses.

For miles downstream from Tower Bridge there are huge docks, warehouses, and riverside factories which use coal and raw materials brought by boat. Back from this part of the river, especially along the railroads, there are thousands of other factories of many kinds. Some of the streets near the docks are named after distant places; they are linked with the life of the sea. In them may be seen strange people assembled from the ends of the earth. Everywhere in this "Dockland," with its armies of workmen, there is smoke from factories, locomotives, or ships. East London is most un-English. A hundred years ago it was for the most part open countryside. It has since become a crowded city area to meet the needs of commerce and of manufacturing. In contrast with the "City" and the West End, it accordingly has no very old buildings. All its inhabitants are working people. Visitors to London prefer to stay in other parts of the city, and so it has no hotels. Fried-fish houses and coffee rooms take the place of restaurants. Its multitudes of houses, most of them very small and many of them very

Figure 44

dingy, line hundreds of miles of unattractive streets.

The road to everywhere. — Tower Bridge can be opened to permit the passage of ships, but the great ocean liners and the larger cargo vessels which visit London dock downstream. Smaller boats from North Sea ports and fishing banks pass Tower Bridge and land their passengers and freight at wharves in the stretch of river below London Bridge. Here, you remember, was the original port of London. The long building on the farther bank of the river not far from the left edge of the picture in Figure 44 is the Custom House. Beyond it, in the eastern part of the "City" and conveniently near to the old harbor, are the offices of the great shipping companies. The building just to the left of the Custom House in Figure 44 is Billingsgate Market, in front of which one may see boats which have brought fish directly from the North Sea fishing grounds. The great fish market of London has stood on this spot for more than six hundred years. Even above London Bridge the river is lined for some distance by wharves and warehouses to which goods are brought in barges from ships which are unloaded below Tower Bridge. A number of these river barges, which can readily pass under London Bridge, can be seen in Figure 44. It is, however, below Tower Bridge, London's gateway to the outer world, that one may see the busiest river scenes. Here, in the vicinity of the great docks and warehouses, ships sometimes crowd the muddy waters of the river. They fly the flags of

every seafaring nation; they bring cargoes of every imaginable kind; they will sail to ports scattered throughout the maritime world. The Thames is truly "the road to everywhere."

Thames shipping and the tides. — You have learned how the tides help to make England's rivers useful as highways (p. 38). Large ships could not reach London but for the tides, — the water in the Thames would not be deep enough to float them. Such ships always go up the river with the incoming tide and go down with the outgoing tide, so as to take advantage of the deeper water. London Bridge is some sixty miles from the sea, and that is just about the distance which an ordinary steamer can cover while the incoming or the outgoing tide flows. The tidal flow in the Thames has been of great importance in the development of London.

Although the tides help shipping so greatly, they also hinder it in certain ways. If a large vessel arrives at the mouth of the Thames so as just to miss the inflowing tide, it has to anchor and await the next tide about twelve hours later. Such loss of time is costly. Similarly, boats must sail from London at the will of the tide, sometimes at dead of night. More than that, if big ships that had come up to London "on the tide" remained in the river there, they would be left on the bottom when the tide fell. Accordingly, they enter the lock docks which have been built here and there along the riverside. About three-fifths of all the cargo vessels that visit the Thames enter the docks to be unloaded and loaded, while only two-fifths of them are unloaded at wharves along the open river, or discharge their cargoes to barges in the stream.

The docks at London. — The great docks along the Thames at London are shown on the map in Figure 45. These are all within ten miles of London Bridge. Some twenty-five miles downstream there are other huge docks that are used by the great ocean liners which enter the river. You saw in Figure 44 the docks which are farthest upstream; they are used by comparatively small ships. All of the docks are separated from the river by gates or locks, and are equipped with pumping machinery, so that the water in them can be kept at the desired level regardless of the stage of the river. Notice that most of the docks are on the inside of great bends in the river, where they could easily be provided with outlets at both ends (Fig. 45). It was comparatively easy to dig the dock basins, for below Tower Bridge, you remember, the Thames is everywhere bordered by very low, almost flat land. All the docks are well supplied with railroads which connect with the main lines that serve London. They have sheds where mixed cargoes are sorted, huge warehouses where goods are stored, and the most modern contrivances for handling freight, such as mechanical conveyors, electric trucks, and huge moving cranes.

Some of the docks are equipped with special means of storing certain kinds of goods. For example, at the Millwall Dock (Fig. 45) there are huge elevators for grain. At the Surrey Commercial Docks (Fig. 45), you might see ponds for the storing of timber, big refrigerating plants for meat and dairy products, and for wine the largest cellars in the world. The main commodities to be seen at the Royal Victoria, Royal Albert, and King George V docks (Fig. 45) are tobacco, grain, frozen meat, wool, and fruit. The tobacco warehouses at the Royal Victoria Dock will hold more than 30,000 tons, and there is cold storage space at these docks for more than 1,000,000 carcasses of mutton.

Much freight brought by boats into the docks is not unloaded upon the quays there, but is transferred directly from the ocean-going ships to river barges. There are some 12,000 barges in service along the Thames.

Almost $60,000,000 are now being spent on the further improvement of the docks and on the deepening of the river channel. When the latter work is completed, much shipping

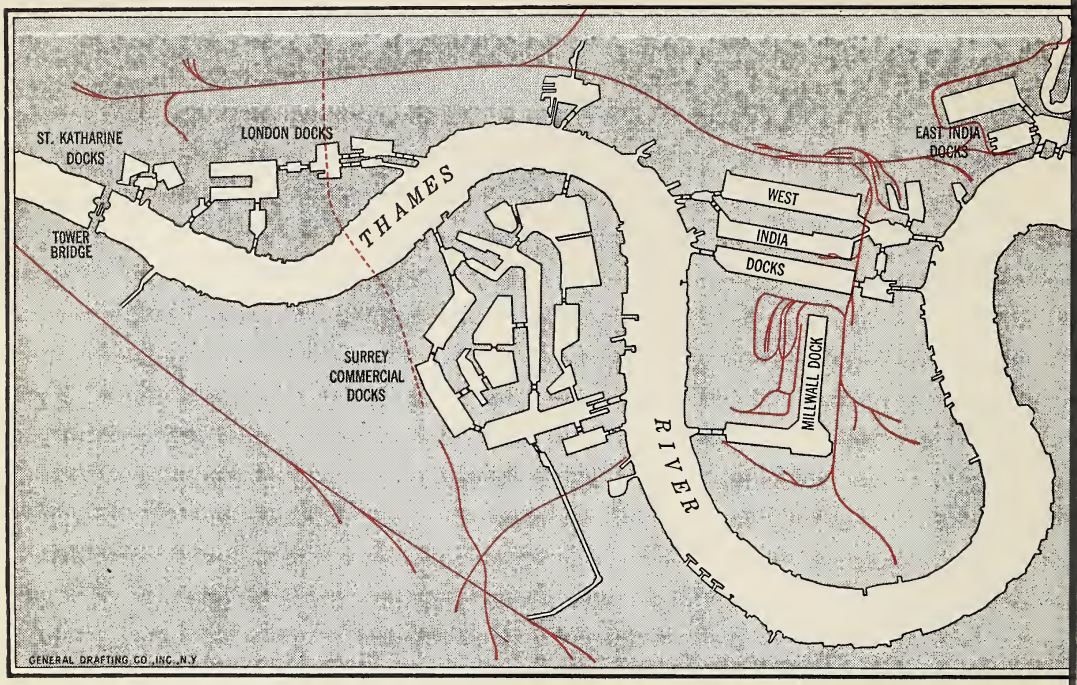


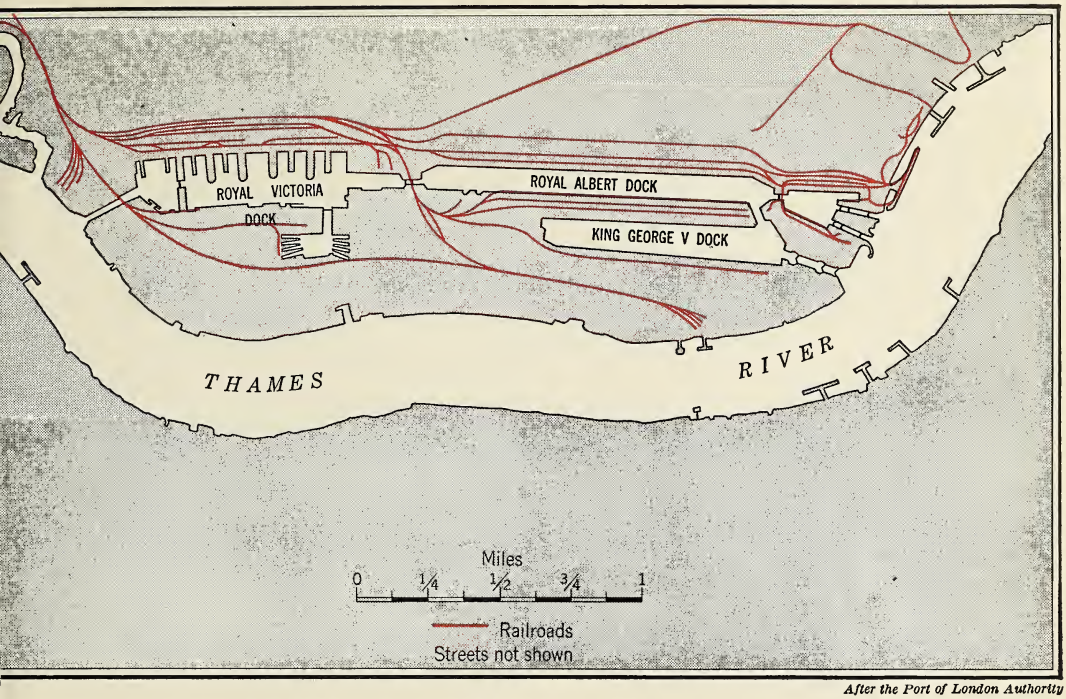
Figure 45. The docks at London

will be freed from dependence on the tides.

The sea trade of London. — In a recent year the leading ten imports of London, by tonnage, were grain, timber, paper and pulp, sugar, fruit, meat, provisions, iron, steel, and other metals, oils and tallow, and tea. What have you learned about England which helps you to explain the fact that more than half of these leading items were foodstuffs? What have you learned which helps you to explain why some of the others were so important? In the long list of less valuable imports which you might see being unloaded along the Thames are such interesting items as mother-of-pearl, shells of many kinds, ivory, spices, rubber, indigo, copra, and furs.

By value, the most important import of London is wool, of which the city receives about two-thirds of all that is imported into England. It is unloaded and stored there, sold by auction in the London Wool Exchange, and then shipped to the woolen-manufacturing centers (pp. 17, 18). No woolen goods are manufactured in London, and other ports are nearer the places in England where they *are* made. It probably will seem strange, therefore, that the great wool market of England is in London. But long ago wool was an important *export* from England, especially to Belgium, and London was the English port nearest Belgium. London has been able to retain leadership in the trade, though other ports are better situated for carrying it on now that its direction is reversed. So London to-day benefits from past conditions. This "momentum of the past" is one of the chief advantages of London over its rivals.

Much freight, such as wool, tin, and tea, for example, is brought to London from overseas, is stored there for a time, and then is exported to other countries, for the merchants of many lands look to London as a great central



After the Port of London Authority

market for various commodities. The British products exported by London are largely manufactures. Why is this the case? The leading six items, by value, are cotton goods, woolen goods, machinery, iron and steel manufactures, electrical goods, and wearing apparel. What have you learned about England which helps you to explain the importance of the first four of these items?

The largest item in the coastwise trade of London is coal, about half of the city's supply coming by water. Most of the seaborne coal is brought down the eastern coast from the coal-shipping ports of northeastern England (p. 19). This coal is used largely by manufacturers, especially by the gas companies which serve the city. Some coal is brought around the southern coast from Wales; this is sold as bunker coal to ships visiting London. Most of its household coal, of highest value, comes to London by rail.

The manufactures of London. — Above all else, London is a commercial city. And yet, just because of its commercial advantages and its size, it became the greatest manufacturing city in Britain even though there is no coal near at hand and most of the raw materials for its industries come from afar.

As you should expect from its commerce, London does not specialize in any particular kind of manufacturing. Its manufactures, like the commodities in which it trades, are most varied. Among its leading products, however, are certain things which you learned to associate with great cities in your study of the United States — such as clothing, prepared foods, shoes, and printed matter.

The great gas works of London are on the river to save the cost of hauling coal by land. Near the huge grain elevators at some of the docks there are big flour mills; by manufacturing the flour at the docks there is saved the

cost of shipping the wheat to inland mills (p. 23). In a trip up the Thames to Tower Bridge you could see along its banks guano works, chemical plants, dye works, soap factories, sugar refineries, a huge factory for the manufacture of margarine, iron works, stone works, varnish and paint works, ship-building yards, wood-paving plants, and many other manufacturing establishments. The "heavy manufactures" that are not near the Thames are found, for the most part, along the railroads of the East End and those south of the river.

Cheap clothing, cardboard boxes, umbrellas, cigarettes, and hundreds of other articles of similarly varied sorts need not be made near the river or a railroad, nor in a big factory or mill. The materials and the products can easily be carted through the streets or can be carried by the workers. The work can be let and sublet, and can be done in small shops or even in the homes of the workers. Such manufacturing work is scattered widely throughout the East End.

London's food supply and markets. — Hundreds of thousands of people are employed in producing food for the London market, in transporting it to the city, and in preparing, selling, and distributing it there. Billingsgate, as you already have learned, is the great fish market of London. There also are markets in which fruit, flowers, plants, poultry, game, meat, vegetables, and so on are sold. All of them are within or near the old city. Do you think that these markets are well located for the sale of such things? Why, or why not? Does their position suggest that they have been market places for a long time, or for a short time? What have you learned which suggests that such a position is less convenient now than formerly? Much produce comes into these markets near the center of London only to be taken back to the outer parts of the city. Some of the markets have no direct contact either with railroad or river transportation. Everything brought to one of the greater of them must be carried for miles through the busiest city streets in trucks, wagons, or carts. Attempts have been made in recent years to move some of the markets to better locations, but they have failed partly because of long established habits. In many ways London lives in the past as well as in the present; its geography in earlier centuries helps to explain its geography to-day.

In England, especially in the southeastern part, almost every farmer produces something which finds its way to the London market. London depends upon English farmers in greatest measure for milk. What reasons can you give for this fact (p. 25)? The total amount of milk consumed in the city in a year is more than 90,000,000 gallons, and it is estimated that more than 25,000 people are employed merely in its distribution in London.

A mighty city. — Far beyond the limits of London itself, as you have seen, live many farmers, as well as many fishermen, many coal miners, many men engaged in transportation, and many workers of other kinds, who earn their livings, wholly or in part, by helping to furnish things needed in the mighty city. In it one finds many signs of past conditions, of the riches of Britain, of manufacturing on an enormous scale, and, above all, of the great trade of the British in visible and invisible things. To know London helps one to realize how some forty-seven millions of people can make their livings in the British Isles and why Britain has become great among the countries of the earth. London is in reality, as well as in name, the very heart of that fifth of all the land of the world which forms the British Empire.

Summary Exercises

Relationships. — Notice that in the following list each numbered paragraph is divided into two parts which are connected by an arrow. In each case, the part before the arrow names something about man, his work, or a product of his work. The

part following the arrow names one or more natural conditions, or facts about them, *to which the item or items named in the first part are related.* For instance "lock docks," named before the arrow in the first paragraph, are something which man has built, as you have seen, at various British ports. "Great change in level of water between low and high tide" is a natural condition at these ports which *helps* to explain why man has built such docks there. Notice, however, that this second part is only *one* reason why man has built the lock docks. They are very expensive, of course, and if, for example, there had not been enough trade to make it pay to build them, he would not have done so merely because the level of the water changes greatly with the tides. Remember that in no case does the second part of a paragraph *wholly* explain the first part. Each paragraph, however, suggests one or more relationships which are geographic, that is, relationships which exist between one or more human items and one or more items of the natural surroundings or environment. Of course, only a few of the relationships between man's activities in the British Isles and natural conditions there are suggested by the list. As you read it for the first time, count the number of these relationships which you had discovered in your study of the British Isles.

1. Lock docks ⟶ great change in level of water between low and high tide.

2. Clusters of manufacturing cities ⟶ coal fields.

3. Collieries ⟶ good coal near enough to the surface to be mined.

4. Strings of long, narrow, coal-mining villages ⟶ deep, narrow valleys carved in a plateau, their bottoms below coal seams which "outcrop" on the valley sides.

5. Shipping of coal ⟶ abundant coal near good harbor, and down-grade slope from mines to docks.

6. Manufacture of iron in early times ⟶ supplies of iron ore and timber near at hand.

7. Manufacture of heavy iron and steel wares at several seaports ⟶ abundant supply of coal near at hand, some iron ore near-by, sea highways to places near other iron ore supplies, good harbors.

8. Manufacture of lighter iron and steel wares in several inland centers ⟶ abundance of coal near-by; some iron ore near-by; lack of sea highways all the way to places near iron ore supplies; good natural, lowland land routes to the coast.

9. Manufacture of tin plate in earlier times ⟶ supplies of iron ore, tin ore, and coal near at hand.

10. Later growth of early established tin plate industries ⟶ abundance of coal near-by, sea highways to places near tin ore deposits, good harbors.

11. Manufacture of pottery ⟶ abundance of coal and of clay for coarse wares near-by, good natural lowland routes to coast, deposits of clay for fine wares near coast in southwestern Britain.

12. Manufacture of woolen cloth in early times ⟶ much pasturage good for sheep, streams furnishing water power and water for washing wool.

13. Later growth of well established woolen industries ⟶ abundance of sheep pasturage and coal near-by, streams furnishing water for washing wool, good natural routes to coasts from which extend sea highways to other wool-producing lands.

14. Manufacture of cotton yarn and cloth ⟶ moist, rather even climate; abundance of coal near-by; sea highways to cotton-producing lands.

15. Manufacture of linens ⟶ cool, rainy summers suitable for growing flax; short sea highway to coal; sea highways to other flax-producing lands; abundance of water excellent for bleaching.

16. Great amount of stock farming ⟶ cool summers, mild winters, and much rain, all suitable for raising grass; some soils too light and dry for crops; some soils too heavy and wet for crops; some soils suitable for forage crops; many rough, upland pastures.

17. Feeding of calves as a specialty ⟶ nature of grass due to rainy, cool, rather even climate.

18. Summer pasturing of cattle a specialty ⟶ good quality of grass during cool, rainy summer.

19. Winter fattening of cattle on forage crops a specialty ⟶ rather dry summers, climate and soils favorable for root crops.

20. Raising of sheep ⟶ much pasture land rather poor for cattle.

21. Winter pasturing of lambs on uplands ⟶ low uplands, mild winters, marshy lowlands.

22. Pasturing of sheep on uplands in summer, on lowlands in winter ⟶ rather high uplands on which winters are rather severe.

23. The use in one section of Britain of a considerable part of the land for winter wheat ⟶ rather dry, warm summers; much medium heavy clay or loam; mild, moist winters.

24. The use of some land in many sections for growing oats and root crops ⟶ ability of oats and root crops to stand both rainy, cool summers and rather dry summers.

25. Housing, in some sections, of animals in winter ⟶ length and severity of winter.

26. Many buildings of brick and stone ⟶ abundance of clay and of building stone; damp, cool climate; shortage of timber.

27. Large farms, farmhouses spaced far apart ⟶ much natural grassland.

28. Rather small farms, farmhouses grouped in

villages ⟶ soils and climate suitable for mixed farming.

29. Much deep-sea fishing ⟶ many good harbors, abundance of fish in near-by seas.

30. Use of trawlers ⟶ abundance of fish living near bottom of fishing grounds.

31. Use of drifters ⟶ abundance of fish living near surface of waters of fishing grounds.

32. Seasonal work at drifter ports ⟶ many more herring to be found in summer than at other seasons.

33. Greater fishing centers on east coast of Britain ⟶ location of best grounds for fishing.

34. Early trade ⟶ narrowness of seas between Britain and the continent, rivers and tides which afford good harbors far inland.

35. Early progress along many lines with little interference from outsiders ⟶ surrounding waters, which afforded a measure of protection.

36. Development of later trade ⟶ position near edge of the narrower of the greatest two oceans, in a place favorably located with regard to seaways to many lands.

37. Development of many ports on rivers ⟶ wide mouths of many rivers, great tidal changes, navigability of lower rivers for large craft.

38. The importing of many raw materials for manufacture ⟶ abundance of coal, insufficient supply of raw materials, sea highways to many lands.

39. The exporting of many manufactured articles ⟶ natural conditions favoring trade and manufacturing.

40. Fording of Thames in early days ⟶ shallow, narrow place in river.

41. Centering of roads on London in early times ⟶ position of Thames between Strait of Dover and many parts of England, position of London at bridging place farthest downstream, surrounding lowlands.

42. Development of early trade at London ⟶ navigability of the Thames from the crossing place to the sea.

43. Growth of commercial center, or "City" ⟶ position near place most convenient for early shipping and for crossing Thames.

44. Growth of residence and government center in West London ⟶ position above head of ocean navigation, beauty of Thames.

45. Growth of Dockland or East London ⟶ increase in depth and width of Thames downstream from bridge, lowlands along river affording good places for docks.

46. Building of docks with openings at both ends into river ⟶ windings of Thames.

47. Times at which ships dock ⟶ times of high and low tides.

Some things to do with the relationships listed. — 1. As you read the list of relationships to count those you already had discovered, did you not notice that some apply to all Britain or the British Isles and others only to particular places? As you copy these relationship paragraphs in your notebook, write "British Isles" after each one which applies to the British Isles as a whole. After each of the others write the name of a city, district, or country in the British Isles which that relationship paragraph suggests to you.

2. Select from the paragraphs listed under "Relationships" those which you could use in showing why Britain is a great manufacturing and commercial nation. Select those which you could use: (1) in showing why Britain has so many people; (2) in showing why Britain has become so great; (3) in explaining the differences between Britain and the Irish Free State.

A paragraph to write. — Recently, the coal miners of Britain were dissatisfied with their wages and went on a strike. After listing, to aid you, as many uses made of British coal as you can, consider how many kinds of work would be affected if a strike among British coal miners were long continued. In time, of course, the coal supply of Britain will be exhausted. Consider how it probably would affect Britain to have little or no coal, instead of much. With these facts in mind, write for your notebook a paragraph in which you try to explain clearly the importance of coal to Britain.

A map for your notebook. — Suppose you were to land at Southampton and to travel through Great Britain and Ireland by the following route: Southampton — London — Birmingham — Stoke — Liverpool — Manchester — Sheffield — Leeds — Newcastle — Carlisle — Glasgow — Edinburgh — Dundee — Aberdeen — Inverness — Fort William — Belfast — Dublin — Cork — Cardiff — Bristol — Plymouth — London — Dover. Follow this route carefully on the map in Figure 11. Find all the places you can along the route where railroads seem to have been so planned as to pass through valleys, gaps, or other comparatively low places in crossing highlands. Draw this route in red on an outline map, showing, as nearly as you can, actual, instead of airline, routes from place to place.

Decide whether in your estimation this would or would not be a good route for a geography class to follow in order to see many kinds of work and many uses of land that are important in the islands. Try to prove the wisdom of your decision by describing

the kinds of work and the uses of land of which one could see signs along each section of the journey. Keep the map in your notebook.

Things to explain. — 1. The following table shows the variation in depth of water at a place in Hull harbor during eighteen hours of a certain day.

Midnight	12	feet			
1 : 00 A.M.	12	"	10 : 00 A.M.	23	feet
2 : 00 A.M.	9	"	11 : 00 A.M.	19	"
3 : 00 A.M.	7	"	12 : 00 noon	$15\frac{1}{2}$	"
4 : 00 A.M.	9	"	1 : 00 P.M.	12	"
5 : 00 A.M.	$13\frac{1}{2}$	"	2 : 00 P.M.	9	"
6 : 00 A.M.	$17\frac{1}{2}$	"	3 : 00 P.M.	7	"
7 : 00 A.M.	22	"	4 : 00 P.M.	7	"
8 : 00 A.M.	24	"	5 : 00 P.M.	10	"
9 : 00 A.M.	25	"	6 : 00 P.M.	$14\frac{1}{2}$	"

What have you learned about the seas near Britain that helps you to explain these differences in depth? So far as you can judge from this table, what was the best time during those hours for a large ship to arrive at Hull? What would very large boats that arrived on that day at two o'clock in the morning or two o'clock in the afternoon have had to do?

2. Largely because so much of the trade of Ireland is with Great Britain, routes from the interior of Ireland have centered on the eastern and southeastern coasts of the island, and there the more important ports have developed. On the other hand, most of the cable, wireless, and ship-signaling stations of Ireland are on the western and southwestern coasts. What reason or reasons can you give for this fact?

3. What have you learned about Britain which helps to explain the fact that many famous breeds of stock, such as Cheviot sheep, are named after places in Britain?

4. What striking facts do you find from Figure 11 about the distribution of railroads in the British Isles? What facts about Britain can you give that help to explain their distribution?

5. Your study of Britain should help you to understand and explain the meaning of the following rhyme by Kipling, the last two stanzas of a "make-believe" conversation between Britain and its "Big Steamers."

" Then what can I do for you, all you Big Steamers,
Oh, what can I do for your comfort and good? "
" Send out your big warships to watch your big waters,
That no one may stop us from bringing you food.
For the bread that you eat and the biscuits you nibble,
The sweets that you suck and the joints that you carve,
They are brought to you daily by all us Big Steamers,
And if any one hinders our coming you'll starve! "

6. Tin plate is shipped from South Wales to other parts of the world largely as flat sheets, instead of being made in Wales into boxes, cans, or other containers for tobacco, canned fruits, oils, and other products. What have you learned about costs of transportation that helps you to explain this fact (p. 15)?

A "flash card" game. — On a stiff piece of paper or cardboard, print a name (such as Cardiff, the Tyne, or Wales) of some place or feature in the British Isles. Use a card large enough and make the letters heavy enough so that the name can be read across the classroom. Make a set of as many such cards as there are pupils in the class, printing on each a different name. Make on the blackboard a list of the names selected, and after each name write a phrase which describes the place or feature named. For example, " the greatest coal-exporting port of Britain " should suggest Cardiff, " a river of northeastern England famous for shipbuilding and coal-shipping along its banks " should suggest the Tyne, and " the smallest country in Great Britain " is Wales. The leader makes a copy of the names and descriptive phrases, and then erases them from the board. Distribute the cards so that each pupil has one. The leader reads a descriptive phrase, and then counts ten. If the pupil who has the card bearing the name of the place or feature which the phrase describes leaves his seat before the leader finishes his count, he comes to the front of the room, holds the card so that all may read it, and then places it in the hands of the leader. If he does not leave his seat before the count is finished, he must keep the card. If any pupil presents a wrong card, the leader of course does not accept it. The class is divided into two equal " sides," and the side wins which first has all of its cards in the hands of the leader.

Old games. — Many of the games suggested in *Journeys in Distant Lands* and in *United States and Canada* can be played with names and facts you have learned in the study of the British Isles. You might, for example, play some " matching " games with the list of forty-seven relationship paragraphs.

Six words. — Find two words beginning with " f " and four with " c " that name things which help to explain Britain's greatness.

Figure 46

FRANCE

Britain's nearest neighbor. — The picture in Figure 46 was taken in the country which is Britain's nearest neighbor. Which country is that (Fig. 8)? What waters lie between it and Britain? What likeness, if any, between France and Britain does Figure 46 suggest to you? Though France and Britain are close neighbors and are similar in various ways, there are many differences between them. The following exercises will help you to find some of the more important ways in which they differ.

Differences between France and Britain.— Draw a rectangle half an inch wide and two and three-eighths inches long, to show the size of Britain. Draw a rectangle half an inch wide and five and one-fourth inches long, to show the size of France. Let one dot stand for one million people. In the rectangle which you label Britain, make forty-four dots, distributing them evenly, and in the one you label France, distribute thirty-nine dots evenly.

With the aid of this graph, and of the maps and graphs in Figures 6, 11, 47, 48, and 49, you should be able to discover six differences between France and Britain which the following questions suggest. Which is greater, the area of France, or that of Britain? In which are there more people? In which is the average number of people to the square mile greater? In which is there the greater number of cities having more than 100,000 inhabitants? In which is the amount of foreign trade greater? In which is the number of farmers greater? List in your notebook the six differences between France and Britain which your answers to these questions show. As some of these differences suggest, *agriculture is of greater importance in France than it is in Britain, and trade and manufacturing are of less importance.* Add this statement to your list of differences. Leave space enough following your list so that you can add to it from time to time other important differences which you find between France and Britain.

From " Views in Rural France " in the following pages, try to picture in your mind the French landscapes described there, and find four differences between agriculture in France and in Britain which are suggested by the following questions. In which are more kinds of crops grown? What kinds of crops, if any, which you did not find in Britain are important in France? In which of the two countries is grain farming of greater importance? In

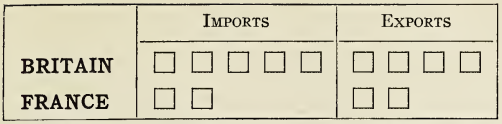


Figure 47. Value of foreign commerce: each square stands for goods valued at about $1,000,000,000

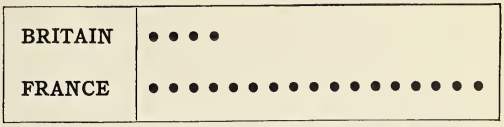


Figure 48. Numbers of farmers: each dot stands for about 500,000

which one is stock raising of greater importance?

Keep a list of any other questions which these "views" raise for you.

Views in Rural France

From London to the Rhone Delta. — Suppose that, instead of sailing along the Mediterranean coast of France (*Journeys in Distant Lands*, p. 72), you were to go from London to the Rhone delta by way of Paris and the railroad which leads through Dijon and Lyon (Fig. 49). The following paragraphs describe the journey from Dijon to the delta. If you left Dijon at about 9 o'clock in the morning, you could reach the delta by late afternoon.

A trip down the Saône-Rhone Valley. — Southward from Dijon the train moves at high speed along an almost level valley floor. From the train window on your right you can see a long, level-topped cliff which forms a wall along the western side of the valley. You cannot see beyond this wall.

The railroad runs near the base of this cliff. Though the face of the cliff slopes very steeply, its lower part is divided into many small plots and is carefully cultivated. In most of these plots grapevines are planted. The upper part of the slope is thinly covered with low trees and bushes. Along the base of the cliff are many little villages, so close together that it is hard to tell where one ends and the next begins. So much valuable wine is made from the grapes which grow on this sunny slope that the French people have named it the *Côte d'Or*, which in English means the *Cliff of Gold*. Find it on the map in Figure 49.

The eastern wall of the valley is so far away that it is not in sight from the car windows. As far as you can see to the east stretch vineyards, corn fields, and wheat fields, — separated here and there by straight, white, poplar-bordered roads. Figure 46 shows some of the vineyards near the eastern valley rim. Farther south, the railroad runs close to the Saône, and from the east window you can see the broad, gray, sluggish river, flowing brim full between level green banks. Now you catch a glimpse of a long line of blue hills in the far distance. These are the Jura Mountains (Fig. 49).

Soon you begin to see among the vineyards and corn fields many peach orchards, with row after row of small, carefully pruned trees.

At Lyon (Fig. 49), a great city with many broad streets and fine buildings, the Saône River joins the Rhone. As you follow the valley southward below the junction of the two rivers, you can see flowing side by side in the same channel the muddy, gray, Saône water, and the swirling blue water of the Rhone.

There are few corn fields south of Lyon. Between the vineyards and orchards and wheat fields you begin to see rows of low, well-pruned mulberry trees. Their leaves are used to feed the silkworms which are raised in many of the farmhouses in this part of the valley.

As you continue southward, you notice that the valley is becoming narrower. Now and then through a break in the east wall you catch a glimpse in the distance of some snow-capped peak of the high Alps. Presently the terraced east wall of the valley is so close that you can scarcely see to the top of it. The soil on each narrow terrace is held in


WEST-CENTRAL EUROPE
Miles
0 25 50 75 100 125 150
SYMBOLS FOR CITIES & TOWNS
More than 1,000,000
500,000 to 1,000,000
100,000 to 500,000
Principal Railroads
50,000 to 100,000
Other towns
Capitals
Canals
ELEVATIONS IN FEET
More than 10,000
5,000 to 10,000
2,000 to 5,000
1,000 to 2,000
500 to 1,000
Sea Level to 500
Below Sea Level
NETHER LANDS
Rhine
Dortmund
Duisburg
Essen
Ruhr
R.
Düsseldorf
Cologne
NORTH SEA
Amsterdam
Zuider Zee
The Hague
Rotterdam
(SEE INSET)
NETHERLANDS
London
ENGLAND
Strait of Dover
Bruges
Ghent
Schelde R.
Antwerp
Cologne
Rhine R.
FLANDERS
Roubaix
Brussels
Lille
Lys R.
BELGIUM
Liège
Meuse R.
ENGLISH CHANNEL
Havre
Rouen
Seine R.
LUX.
Luxemburg
Rheims
Paris
Moselle R.
Nancy
Strasbourg
BRITTANY
Chartres
BEAUCE
CHAMPAGNE
Loire R.
Basel
Dijon
Bern
SWITZERLAND
FRANCE
CÔTE D'OR
Loire R.
Seine R.
JURA MTS.
BAY OF BISCAY
CENTRAL PLATEAU
Geneva
St. Étienne
Lyon
Grenoble
Turin
Bordeaux
Garonne R.
Rhone R.
SPAIN
PYRENEES
Marseille
MEDITERRANEAN
GENERAL DRAFTING CO., INC., N.Y.
0°
50°

Figure 49

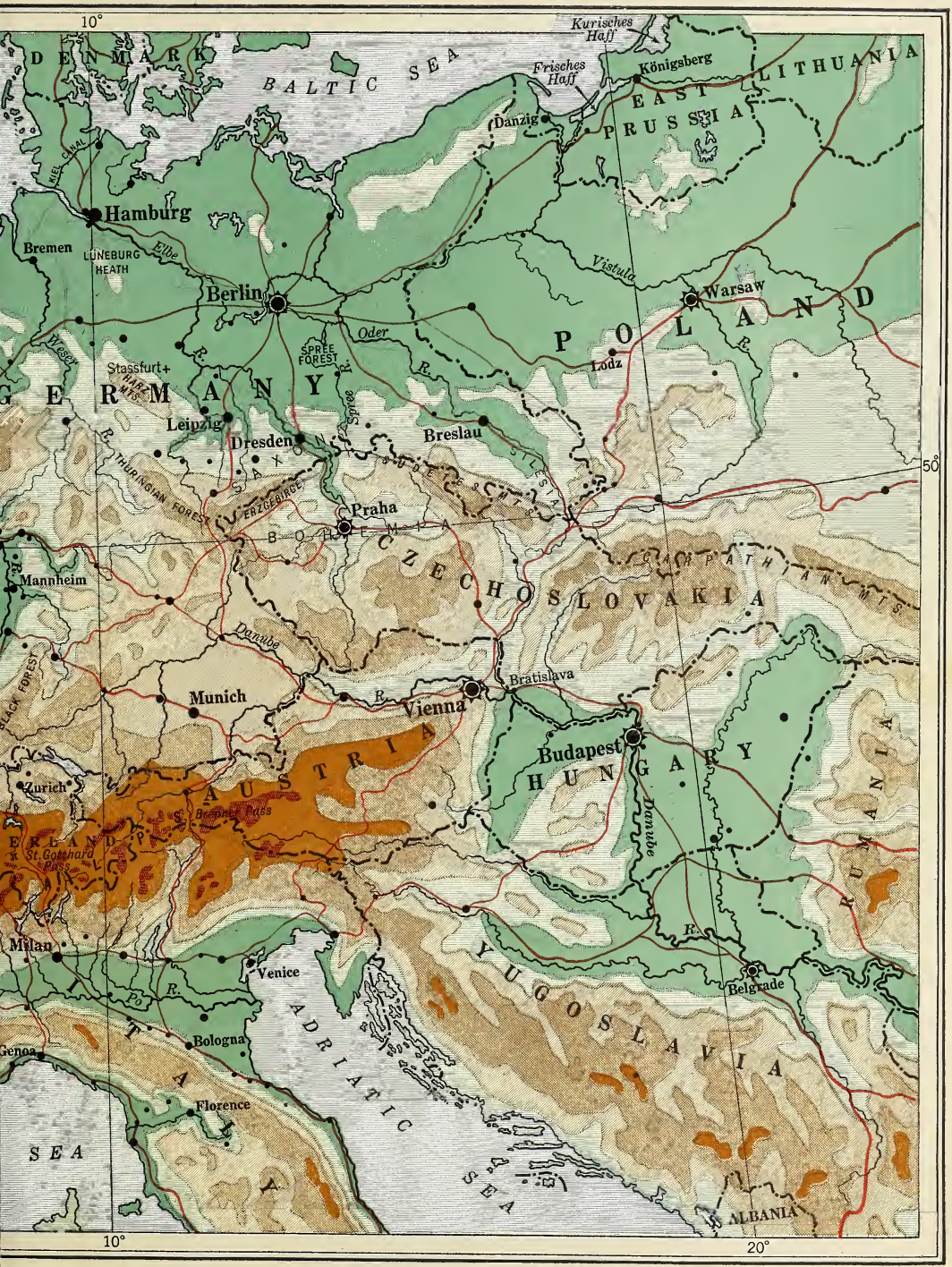

10°
Kurisches Haff
Frisches Haff
Königsberg
LITHUANIA
EAST PRUSSIA
DENMARK
BALTIC SEA
Danzig
KIEL CANAL
Hamburg
Bremen
LÜNEBURG HEATH
Elbe
Berlin
Vistula
Warsaw
POLAND
Oder
SPREE FOREST
Weser
Stassfurt+
HARTZ MTS.
GERMANY
Lodz
Leipzig
Dresden
Spree
Breslau
SILESIA
SAXONY
ERZGEBIRGE
THURINGIAN FOREST
Praha
BOHEMIA
CZECHOSLOVAKIA
CARPATHIAN MTS.
50°
Mannheim
Danube
BLACK FOREST
Bratislava
Munich
Vienna
Budapest
HUNGARY
Zurich
AUSTRIA
Brenner Pass
SWITZERLAND
St. Gotthard Pass
Danube
Milan
Venice
Belgrade
YUGOSLAVIA
ITALY
Bologna
ADRIATIC SEA
Genoa
Florence
SEA
ALBANIA
10°
20°

Figure 50 *By courtesy of the French Line*

place by a low stone wall, and every terrace to the very top is covered from end to end with vineyards.

Farther south, the valley widens. You pass through towns whose streets are lined with square houses which have almost flat tile roofs, stone walls, and few windows. Many of the streets are dark and narrow. You might see yoked oxen drawing heavily loaded wagons over the rough cobblestone pavements.

The mulberry trees among the fields become fewer. Soon you see scattered olive trees, as in Figure 50, and later whole orchards of olives among the vineyards of the valley floor. You might see carts like the one in Figure 51, many of them loaded with wine casks. You notice that along the north side of many fields there are straight rows of tall cypress trees planted so close together that their foliage makes a dark green wall. Other cultivated plots are bordered by high, closely woven

Figure 51 *M. T. P.*

screens of wicker. These rows of trees and screens of wicker are to protect crops from the mistral, a cold wind which often blows down the valley from the north in the winter and spring. In summer, however, the fields shimmer with heat beneath a dazzling sun. Where you see bits of bare ground the soil looks dry. The walls of the valley are thinly covered with low, gray-green shrubs and bushes which have small, thick leaves. Here and there are white splotches where men are quarrying rock from the valley slopes.

You come, at last, to the great delta of the Rhone. The valley walls disappear. Low, flat land stretches about you in every direction. As far as you can see, there are acres and acres of vineyards.

Brittany. — Find on the map in Figure 49 the peninsula of Brittany. After a summer visit to the sun-burnt plains of the lower Rhone, you would welcome the cool greenness and the gray skies of Brittany. Brittany is a land of wooded hills, of many streams, of green pastures, and of wind-swept heaths.

Along the ragged shore of the peninsula numerous points of land, or "headlands," jut out into the sea. Between the headlands many a small bay, edged by steep, wave-beaten cliffs and boulder-strewn beaches, provides quiet water where fishing boats ride at anchor. Here and there, on slopes which rim the bays, cluster the red-roofed houses of little villages. On the sandy shores beneath, fishermen spread their nets to dry. Some of the

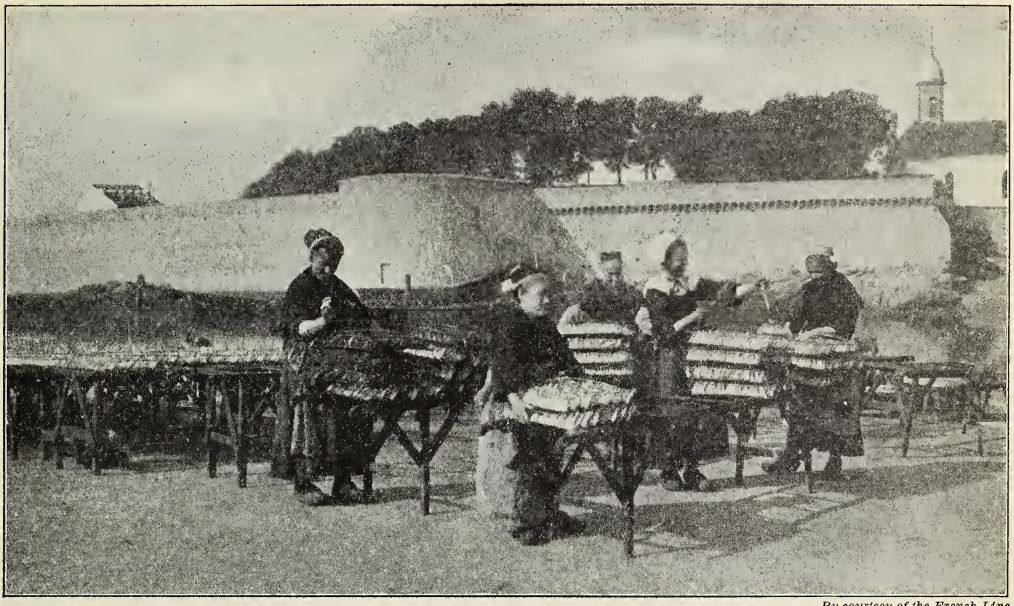


Figure 52

By courtesy of the French Line

fishing boats which you might see in Brittany's harbors have brought herring from the North Sea, while others have carried cod across the Atlantic from the Grand Banks of Newfoundland. Sardine fishermen work chiefly in the waters south of the peninsula. The orange-brown sails and blue nets of their boats add lovely touches of color to many a beach and bay. Fishing provides much work for women, as well as for men. In Figure 52, you see women spreading out trays of sardines to dry. From the rugged shores of Brittany come most of the seamen of France.

The farms of Brittany occupy the stretches of lowland along the coast, or are scattered among forested hills and barren upland moors in the interior. Root and forage crops of various kinds and much good grassland furnish food for many cattle. Dairy farms are numerous. Near the coast there are truck gardens in which vegetables are raised on very carefully cultivated ground. A little flax is grown in parts of the coastal lowlands. On other farmlands you would see many fields planted with rye or potatoes, and little plots of oats and wheat among apple orchards and meadows. Large flocks of sheep graze on many of the poorer pastures.

Sprinkled over the fields, or clustered here and there in villages and towns, are the small stone cottages of the farmers. On market day, you might see the farmers and their wives coming into town in high, two-wheeled pony carts which are laden with baskets. The streets near the market place are crowded with men and women, the men in broad hats and long smocks, the women with aprons and little, stiffly-starched white caps. Some of them are carrying chickens, or heavy baskets of eggs. In one corner of the market place are gathered the pigs which have been brought for sale, each haltered and led about by its owner. In other corners, there are calves and sheep. You hear the clatter of wooden shoes on the stone pavements, mingled with the cries of the animals and the voices of many people bargaining.

As you travel through Brittany, you are

Figure 53

By courtesy of the French Line

Figure 54

© Brown Brothers

surprised often at the many objects and customs of earlier times which still survive there. On the farms you might see men plowing with old-fashioned plows, or winnowing grain in the way which was common in days of old. Notice in Figure 53 the grain spread on the ground where it has been threshed, and the women putting it into sacks by hand. Narrow streets such as that in Figure 54, with their worn pavements, the old, old houses, and the old-fashioned dress of the people, all remind you of the past. Even the language which the country people speak is not the language of the rest of France, but an older one called Breton. Many of the peasants of Brittany do not understand French. It has been said that Brittany is *in* France, but not *of* it. In some ways, Brittany seems to be less a part of modern France than of some older country of the past.

The Granary of France. — Find on the map in Figure 49, southwest of Paris, the town of Chartres. The level land which extends in every direction from Chartres is one of the very fertile areas in France. In some parts of the area there are wide stretches where you

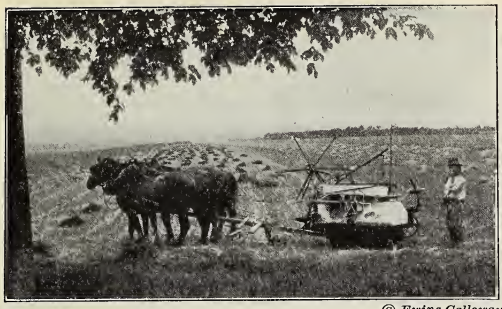


Figure 55 © Ewing Galloway

might see field after field of wheat or oats, with scarcely a house or even a tree to vary the landscape. All the houses are grouped in large villages. Before the harvest season the sunny plain is bright with golden wheat, while small clusters of wild poppies make bits of brilliant color. After the harvest, you might see large flocks of sheep grazing in the stubble fields. Also horses are sent from poorer areas farther west to be fattened in this land of plentiful grain. This rich plain is called Beauce (Fig. 49).

For miles across the level fields of Beauce one can see the spires of the great cathedral of Chartres. For hundreds of years the peasants who cultivated the fertile fields of Beauce have come to trade and to worship in the market town of Chartres. By many years of labor and of saving the prosperous people of Beauce built at last their vast cathedral, which was finished several centuries ago. There are many splendid churches in France, but none is more beautiful than the fine old cathedral of Chartres. The cathedral is one sign of the value of the crops that have earned for Beauce the name, "The Granary of France."

The Paris Basin. — The plain of Beauce is in the southern part of a larger lowland which surrounds Paris and which is known as the Paris Basin. Champagne (Fig. 49) is in the eastern part of the basin. Find on the map the half circle of highland that forms the basin's eastern rim. On the west, the rim of the basin is much lower. In some places it

Figure 56 © National Feature Photos

is so low that it is difficult to distinguish it.

In other parts of the Paris Basin, as well as in Beauce, wheat is an important crop. The wheat fields shown in Figure 55 are east of Beauce in the basin. In the northern part of the Paris Basin, you might see views like that in Figure 56. The women are harvesting sugar beets. Can you see the grain fields in the distance? In the western part of Champagne there are many vineyards, and also much land there is used for pasturing sheep. In eastern Champagne, the pastures are used chiefly for cattle. Here and there throughout most of the basin there are patches of woodland.

The Garden of Paris. — Near Paris the Seine (Fig. 49) flows in a flat-floored valley, narrower than the valley of the Saône, but, like it, bordered by steep walls. Almost every foot of the land of this nearly level valley floor is used for crops. There are few houses, no hedges, and no fences. Space cannot be spared for these. The valley floor, like much of the valley land shown in Figure 57, is a patchwork of small fields with nothing except the difference in crops to show where one field ends and the next begins. The picture in Figure 57 was taken in the valley of one of the tributaries of the Seine near Paris. The floor of this valley, too, as the picture suggests, is fertile and is carefully tilled. Because the great city near-by furnishes a market for large

Figure 57

From Oroc

Figure 58

Figure 59 *By courtesy of the French Line*

quantities of fresh vegetables and fruits, much of the valley land near Paris is used for truck farming and fruit orchards. This fertile land near the heart of the basin might well be called "The Garden of Paris."

Flanders. — Find on the map in Figure 49 the lowland of Flanders in northernmost France. This plain, like the plain of Beauce, is fertile. The plain of Flanders differs in many ways, however, from that of Beauce. In Flanders, many sluggish, tree-bordered streams flow among small fields which, in season, are blue with blossoming flax or yellow with ripening grain. You might see laborers at work in some fields between rows of sugar beets, in others, weeding potatoes, cultivating hop vines, or harvesting oats or wheat. Almost every acre is tilled except the little meadows, covered with thick grass. Much of the landscape is fresh and green. Heavily laden boats go up and down the tree-lined canals which intersect the fields between the streams. Houses surrounded by trees are thickly scattered along the roads and canals, or stand in the midst of the farms. One writer has described the plain of Flanders as "one continuous city."

Other French farmlands. — Notice on the map in Figure 49 that a part of the upland which forms the eastern rim of the Paris Basin is called Lorraine. Find, in Lorraine, the valley of the Saar River. The picture in Figure 58 was taken in this valley. A short distance farther east is the broad, flat-floored valley of the Rhine (Fig. 49). Notice on the map that a part of this valley belongs to France. It is a rich lowland. Do you remember the vineyards, orchards, woodlands, meadows, and fields of hops and grain which you saw in this valley in *Journeys in Distant Lands?* What uses of land can you find in Figure 58 which remind you of the Rhine Valley?

Find, in the southern part of France, the basin of the Garonne River (Fig. 49). Here there is much wheat land, as in the north. But also there are corn fields, and many, many vineyards. In the western half of the basin some tobacco is raised, but only a small part of the land is used thus. The Garonne plain, like the Saône Valley, is a country of corn and wine.

The Central Plateau. — On the map in Figure 49, find, between the Rhone-Saône Valley and the lowlands of western France, the Central Plateau. Figures 59 and 60 show lands in this large plateau section. What uses, if any, do you think are being made of those shown in Figure 59? Swine that are raised in the part of the plateau in which this picture was taken roam in the chestnut woods and feed upon the fallen nuts. Some of the slopes are sparsely covered with grass, upon which sheep graze.

The picture in Figure 60 was taken near the southwestern edge of the plateau. There the rivers have worn deep valleys in the soft rock. Most of the people live on the floors of the narrow valleys. Above the villages there are steep slopes, partly of bare rock, partly covered by short grass upon which sheep and goats feed. During the hot summers many sheep from the near-by plains are driven to these upland pastures to graze. In the porous rock are many caves. In these large, cool caves the people make cheese from the milk of sheep and goats. The well-known Roquefort cheese comes from this district.

Figure 60 © National Feature Photos

Figure 61 By courtesy of the United States Forest Service

Some other parts of the plateau are used chiefly for grazing cattle, rather than sheep. Near its northwestern corner, for example, is a district called "Le Plateau de Mille Vaches," meaning "The Plateau of a Thousand Cattle."

A glimpse of woodland work. — The view in Figure 61 suggests a means of earning a living from some of the rural lands of France that are neither farms nor pastures. The pine cones have been set out to dry so that seed for planting may be procured from them. The picture was taken near the southwestern corner of France, where the government has been converting sandy, marshy wastes into forest lands by the planting of pine trees. Formerly the district was so unhealthful that few people could live there. Some sheep grazed on the sparse grasses, and the shepherds who tended them waded about on stilts through the marshes. Now one finds a great triangle of woodland extending from near Bordeaux westward to the coast and southward almost to the foothills of the Pyrenees (Fig. 49).

U. S. Dept. Agr.

Figure 62. Acreage of vineyards

U. S. Dept. Agr.

Figure 63. Acreage of olives

Men may be seen at work in the forest, felling trees or gathering resin for turpentine. The sand soil, though poor for farming, yields large crops of timber and turpentine. The district has become one of the prosperous, pleasant, and healthful parts of France.

Map pictures. — List any facts you can find to add to your ideas of the landscape and work of various parts of rural France from the maps in Figures 20, 21, 22, 27, 28, 29, 30, 31, 62, 63,[1] and 64. Do you find that any lands in the Central Plateau, for example, are used for crops?

Though Brittany and sections of the Central Plateau are the only parts of France you have visited in which cattle rearing is the chief work, Figure 22 shows that what is true of cattle in France? This means that in most of the country a few cattle are kept on many of the farms. Indeed, there are many more cattle in France than in Britain, but the average number per square mile in France is less. There is only one part of France in which very few cattle are raised. Which part is it (Fig. 22)? Are sheep in that part numerous, or few (Fig. 21)? What do these facts suggest to you about pastures there? Does Figure 21 show that the rearing of sheep is of greater importance in France than it is in Great Britain, or of less importance?

Farming differences. — Add now to your list of differences between France and Britain statements

[1] In Figure 63, the olive-producing area in southern France is ruled, not shown by dots, because of lack of statistics.

U. S. Dept. Agr.

Figure 64. Acreage of sugar beets

which answer the four questions just preceding "Views in Rural France."

Did you not also notice, as you read these descriptions, striking differences between the agriculture of different parts of France itself? Have you not already suspected some reasons for these differences, and some reasons: (1) why agriculture is of greater importance in France than it is in Britain; (2) why more kinds of crops are raised in France than in Britain; and (3) why grain farming is of greater importance in France than it is in Britain, and stock raising of less importance?

The following exercises will help you to find reasons for these differences, and to check any ideas you may have formed concerning them. They also will help you to explain various other facts about which you probably have wondered. Have you not wondered, for example, why the homes of farmers are in some cases on the farms, but in other cases grouped in villages?

Explaining Farm Contrasts

Crops and summers. — 1. As you have seen, all of Great Britain lies north of the fiftieth parallel of north latitude. Does much or little of France lie north of this line? Would you expect France, with the exception of its northernmost part, then, to have longer and warmer summers than those of Britain, or shorter and cooler ones? Tell why. How, then, does the latitude of France help to explain the fact that its crops are more varied than those of Britain?

2. In explaining the kinds of crops raised in the lowlands of France, it is convenient to think of four kinds of lands: (1) the lowlands in which, as in western Britain, mild winters and cool, moist summers help to make dairy farming important but in which wheat farming is less important than in most other French lowlands; (2) those in which, as in southeastern England, the summers are warm enough

and sunny enough for wheat to be a very important crop, but in which they are not long enough and warm enough to be well suited for corn; (3) those in which summers are long enough, warm enough, and rainy enough for corn to ripen well; and (4) those in which summers are long and hot, but too dry for corn to grow well.

Which two of these kinds of lands are not found in Britain? Wheat is important in which kinds? How does this fact help to account for the importance of wheat in France? France now raises more wheat than any other country in Europe. The first kind of land mentioned should suggest Brittany to you. Tell why. The second kind should suggest the Paris Basin; the third kind, the Saône Valley and the Garonne Basin; and the fourth kind, the Rhone Valley south of Lyon. In each case, tell why. The maps in Figures 22, 26, 27, and 30 will aid you in checking your reasons.

Flanders has summers less warm and sunny than those of Beauce and other parts of the inner Paris Basin. Wheat is an important crop there, as in Beauce, but moist meadows provide hay for many cattle, as in Brittany.

In which two kinds of lands are vineyards of much importance? In which kind are they found in a few places, but are not widely distributed? In which are they practically lacking? How do these facts help you to account for the importance of vines in France? France makes more wine than any other country in the world. In which kind of land are olives raised? Sugar beets? Check your answers by Figures 62, 63, and 64.

Which should you expect to be cooled in greater degree by summer winds from the Atlantic, lands in the Saône Valley, or those which border the coast due west of the Saône? Why? What, then, is one reason why corn is important farther north in eastern France than it is in western France?

"Little Britain." — Brittany frequently is called Little Britain. Give all the reasons you can to show that this is an appropriate name for it. Did you give the raising of early spring vegetables near the coast of Brittany as *one* of your reasons? What part of Britain does this work suggest to you (p. 34)?

Uses of land and soils. — In many of the lower lands of Brittany there are heavy clay soils. What facts which you have learned about Brittany does this help to explain? Show how.

One reason for the varied uses of land in the Paris Basin is the variety of soils there. On which should you expect to find the Champagne sheep pastures, slopes from whose porous soil the water drains quickly, or lands where the soils are heavy clay? Vineyards in Champagne also require dry soils which are easily warmed, rather than moist, cold ones. In the valley of the Seine near Paris there are rich soils laid down on the valley floor by flood waters of the river. What use of land in the Paris Basin does this help you to explain? What uses of land in the Paris Basin suggest that the soils in many parts of it are intermediate between light, porous soils, and heavy, clay soils? How do you think soils may help to explain why some parts of the Central Plateau produce woods or moist pasture for cattle, while other parts produce only scant grazing for sheep? What does the importance of rye in the Central Plateau (Fig. 29) suggest about the character of much of the soil there (p. 27)?

Farm homes and water supply. — In the plain of Beauce, the soils are underlain by porous rock, through which water sinks quickly, and, much of it, to great depths. It is expensive to dig wells deep enough to obtain a good water supply there. In Brittany, on the other hand, dense rock layers lie rather near the surface. There and in Flanders abundant water can be obtained in shallow, inexpensive wells. How does this help you to explain the fact that the farm homes in Beauce are grouped in villages, while many of those in Flanders and Brittany are on the farms?

At the foot of the Côte d'Or are numerous springs, and in many places there the spring water is so abundant that no wells need to be dug. What fact which you learned about the grouping of houses there does this help to explain?

Houses. — The view in Figure 65 shows part of a town in southern France. How do the roofs suggest Mediterranean lands? Throughout much of southern France one sees the type of house common in Mediterranean lands where rainfall is in general light and there is little or no snow. In northern France, roofs are steeper.

Farmlands and altitude. — In Britain, as you learned, the lands which are more than 1000 feet high are largely waste lands. Is a large, or small, part of the Central Plateau more than 1000 feet in height (Fig. 49)? What did the crop and animal maps show about much of this land? How does a comparison of the latitude of France with that of Britain help to explain why much high land in France is of more use than equally high land in Britain?

On the map in Figure 49, find the Pyrenees Mountains. The view in Figure 65 shows a part of this great range. Cultivated plots extend a considerable distance up the lower slopes shown in the view. In France, then, "land low enough for

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Figure 65

Reproduced from Philips' Chambers of Commerce Atlas, by permission of Messrs. George Philip and Son, Ltd., London

Figure 66. Coal-producing areas of Europe

farming" means not only the lowlands but also some parts of the highlands. Which do you think has more land low enough for farming, France or Britain (Fig. 8)? How does your answer help to explain the greater importance of farming in France?

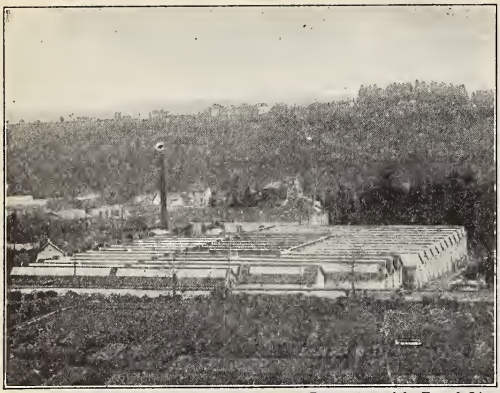
Scenery. — What do you find in the view in Figure 65 which you think would attract tourists? In what other part of France might you see very high, snow-capped peaks (Fig. 49)? Do you think rural France has any attractions for tourists that the British Isles have not? If so, what are they?

Reasons. — What reasons can you now give for the great importance of farming in France? For the differences between farming in France and in Britain? For the differences in farming in the various parts of France itself?

For your notebook. — Add to your list of differences between France and Britain as many others as you now have found.

French Factories

Manufactures and coal. — There are many small districts in France in which coal is mined, as you can see from the map in Figure 66. However, the production of coal there, as well as the tonnage underground, is much less than in Britain. Indeed, not enough coal is mined in France to supply its needs, and much is imported. What item, then, can you add to your list of differences between France and Britain? Does not this help you to understand why manufacturing is somewhat less important in France than it is in Britain? In spite of the fact, however, that France produces much less coal for use in its factories than does Britain, there are many parts of France in which manufacturing gives work to large numbers of people.



By courtesy of the French Line

Figure 67

Besides the difference in the importance of manufacturing in France and in Britain, there is a difference in the importance of certain kinds of manufactures in the two lands. For example, as you might well expect after learning of France's lesser production of coal, *manufactures which require a great amount of work and skill and relatively small amounts of fuel and raw materials* form a greater part of France's manufactures than they do of Britain's. Add this difference to your list.

Directions for reading. — From the following paragraphs, find as many examples as you can of French manufactures in which the work and skill required are great in proportion to the amount of material used.

Find also where the more important manufacturing districts of France are, and reasons for their importance. Find what kinds of manufacturing are important in each, and facts which help to explain their importance.

The iron field of Lorraine. — Find the city of Nancy (Fig. 49). In Lorraine, between Nancy and the northern border of France, lies a busy industrial district. Scattered through the towns which dot this area are scores of factories and mines. There are great blast furnaces in which iron ore is smelted, and steel mills in which crude iron is made into sheets, plates, and other heavy steel wares. As you watch the loaded cars coming from the mine shafts, you discover that they are filled not with coal but with iron ore. There are no coal mines in this district. Unfortunately the coal in the nearest field[1] (Fig. 66) is not good for making coke. This coal is used in chemical factories and glass and pottery works in eastern Lorraine, but most of the coal for coke must be brought from Germany or from the large coal field of northern France (Fig. 66). Though the district suffers from lack of coal, the vast supplies of iron ore which are mined there give a great advantage for the making of steel. More iron ore is mined in Lorraine than in any other iron field in Europe.

The "silk city." — Lyon is the "silk city" of France. Many people in the city do some work in connection with the manufacture of silk. Moreover, much spinning and weaving directed by the manufacturers of Lyon is done in the neighborhood of the city. Notice the surroundings of the silk plant shown in Figure 67. Within the city are "conditioning houses" in which raw silk fiber is dried, weighed, and valued. There are other great factories in which silks are dyed or printed. In still others, shimmering fabrics are woven on great power looms.

On many a quiet street near Lyon one might hear weavers' shuttles clicking busily in both shops and houses. In one room a lone worker is weaving into satin cloth an intricate design of gold and silver thread. In another, a weaver is at work upon a beautiful piece of velvet. The Lyon district is famous for the fine quality and beautiful designs of its silk fabrics.

Many artists are kept busy designing new patterns. To weave the delicate silk thread smoothly and to follow the intricate design, very skillful workers are needed. For more than four centuries silk has been woven at Lyon. The art has been handed down from parents to children through many generations.

Only a small part of the raw silk used in the

[1] This coal field is in the valley of the Saar River (Fig. 49). The coal in this field belongs to France. The land which contains the coal field, however, lies between France and Germany. A treaty made in 1919 provides that before 1934 this land shall belong to neither country.

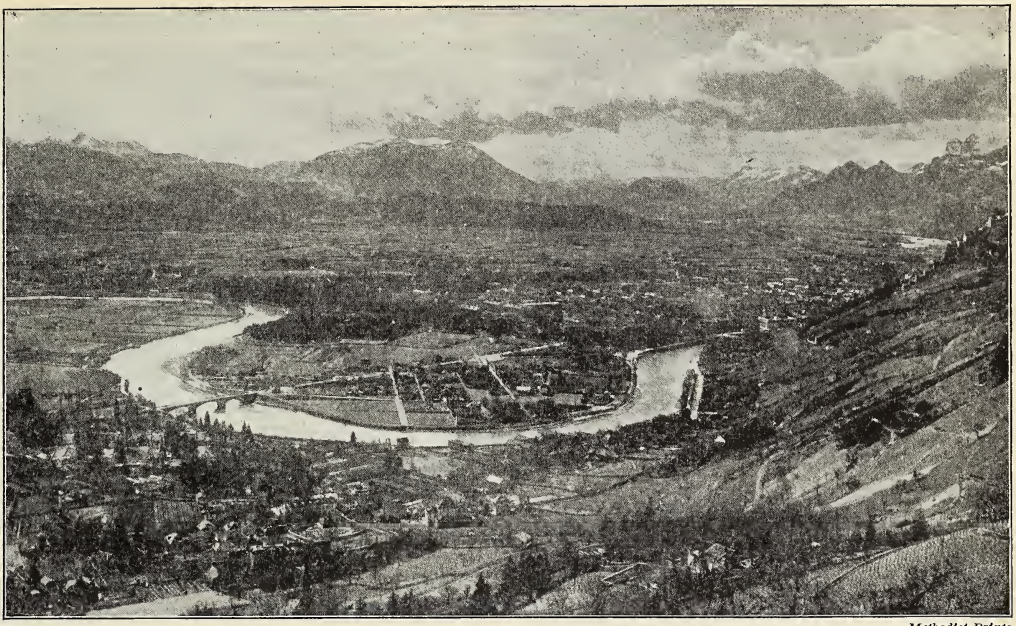


Figure 68 *Methodist Prints*

looms of the Lyon district comes from the near-by mulberry-growing lands. Most of it must be imported from China, Japan, and Italy (Fig. 3). In spite of this, the artistic taste of its designers, the skill of its workers, and the early start of the industry in Lyon help to keep it the most famous silk-manufacturing center, not only of France, but of the world.

Manufacturing among mountains. — Find Grenoble on the map in Figure 49. Figure 68 is a view of the city. What do you learn from the map and this view about the surroundings of the city? Is it not surprising to find here, in the midst of mountains, an important industrial city?

The city of Grenoble has for centuries been famous for the making of gloves. Long before the days of factories the work was done in homes. Skins of goats which roamed on the near-by mountain slopes provided kid. The gloves when finished were goods of such large value in proportion to their weight that they could stand the cost of transportation (p. 15) from such a mountain district.

Though much leather must now be imported to supply the needs of its glove makers, Grenoble continues to be the "glove city" of France. Great glove factories, however, are not needed, because little machinery is used in glove making. There are some large buildings in which great numbers of workers are gathered under one roof to do the part of the work which overseers need to watch carefully. Most of the work, however, is still done, as it was done three centuries ago, in the homes of the workers.

More surprising than the making of gloves in this mountain city are the busy modern factories in which are being made, not gloves, but heavy machinery of iron and steel. Much of this machinery is sold to the power plants which are being built in the district near Grenoble. The picture in Figure 68 helps you to understand why this is a good district for power plants. The many streams flowing into the valley in which Grenoble lies plunge down its steep walls in falls or

Figure 69 © National Feature Photos

swift rapids. The power of these streams was long unused. In the last twenty-five years many plants have been built to convert this power into electric energy. These plants supply Grenoble with electric light, and with power for many of its factories. Grenoble, in turn, has become important as the manufacturer of machinery for electric power plants which are being built not only in this valley but also in other parts of the French Alps.

There are many other industries in the city the growth of which has been favored by abundant labor or plentiful power, or by materials near at hand. You should, however, remember Grenoble chiefly as the old city of glove making — the new city of hydroelectric power.

Cloth and steel in northern France. — Among the rich pastures and the fertile fields of Flanders are towns which are hives of industry. Flanders, together with the portion of the northern plain just south of it, is one of the very busy manufacturing districts in France. In many places the pleasant landscape is marred by coal mines and the smoke stacks of numerous factories. This northern plain is the chief woolen-manufacturing district in France, the chief linen-manufacturing district, one of the chief three cotton-manufacturing districts, and a very important producer of iron and steel. Sugar refineries, chemical factories, breweries, and glass works should also be added to your picture of this industrial landscape. The textile industries have their chief center in the district which includes Lille, Roubaix, and neighboring smaller towns (Fig. 49). The steel mills are scattered through the district, south and southeast of Lille.

The weaving of wool in Flanders, like the manufacture of silk in Lyon, is an old, old industry. To-day the wool, as well as the linen and cotton, is woven chiefly in large factories in which coal is used as fuel. The quaint houses and beautiful churches of some of the old towns which were important woolen-manufacturing centers before the days of factories form a striking contrast to the ugly coal-mining towns and factory villages which lately have sprung up among them.

Varied manufactures. — These are but a few of the many manufacturing districts of France. The city of Rouen, on the Seine (Fig. 49), has great cotton mills which receive large supplies of American cotton carried up the river from the Atlantic port of Havre. A very important cotton industry thrives in the valleys on both slopes of the Vosges highland (Fig. 49). Rheims, near the vineyards and sheep pastures of Champagne (Fig. 49), is a city of wool and wine. Silk is spun or woven in many towns south of Lyon in the Rhone Valley or on the eastern slopes of the Central Plateau. Much wine is made in Bordeaux (Fig. 49), and in many smaller towns of the Saône, Rhone, and Garonne valleys. Every one of the little coal fields scattered about the Central Plateau has its local industries, chiefly metal working or textile manufactures. On only one of these small coal fields, however, has a large city developed. St. Étienne (Fig. 49), on the largest of them, has become a great city, well known for its steel works and ribbon factories. The famous Limoges china is made from deposits of fine white clay at the northwest corner of the Central Plateau. What

manufacturing industry in the French Riviera, of which you learned in *Journeys in Distant Lands* (p. 73), do the roses in Figure 69 recall to you? Do you also remember that soap and oil are made at Marseille? In addition to those mentioned, scores of the smaller cities and towns of France have factories for the manufacture of cloth, paper, leather goods, glass, pottery, or metal ware.

The fashion center of the world. — Finally, the great city of Paris is the home of a multitude of industries. More than a million people are employed in manufacturing in Paris and its suburbs. But Paris is not a city of huge iron smelters, steel mills, and cloth factories like those seen in the manufacturing districts of Lorraine and of the Northern Plain. The vast horde of workers in Paris is employed in making — not steel rails and boiler plates and miles upon miles of cloth — but a great variety of elaborately worked, finished products, including the many articles of beauty and fashion which make a trip through the shops of Paris so fascinating. The factories of Paris make iron and steel into hundreds of products as diverse as automobiles and cutlery, stoves and farm implements, sewing machines and printing presses. There are thousands of workers in leather who make purses, card cases, handbags, and other small, nicely worked and carefully finished leather wares. There are also thousands of jewelers, workers in silver and gold and precious stones. Much attractive, but inexpensive, imitation jewelry is also made. One of the important wood-working industries is the making of fine furniture. The printing and binding of books employ many workers. Delicate instruments which can be made only by very accurate work are manufactured for use in surgery and in scientific laboratories. Most of the best known manufacturers of exquisite perfumes, powders, and toilet preparations of all sorts are Parisians. Fashionable stationery, cleverly made toys and trinkets, embroideries, and dainty finery of many kinds, all made in Paris, help to make the shops of the city attractive.

Most important of all the industries of Paris is the designing and manufacture of women's clothing. The dressmakers, the tailors, and the milliners of Paris are famous throughout Europe and America for the taste and style of the costumes and hats they design. Hundreds of workers in feathers and artificial flowers are kept busy providing trimming for the manufacturers of clothing and hats. Many American dealers in women's clothing send their buyers several times a year to Paris to bring home the latest creations of Paris designers. The art of its milliners and costume designers helps to make Paris the fashion center of the world.

Some reasons for French factories. — List now the French manufacturing districts about which you have learned. With the help of the following questions and statements, write for each district any reasons you have found why that district is suited for the kind of manufacturing done there. (1) What facts which you learned about rural France should help you to explain the silk mills of Lyon, the silk ribbon mills of St. Étienne, the weaving of linens in Flanders, the oil and soap factories of Marseille, and wine making in Bordeaux? (2) Why would the valleys of a highland such as the Vosges be a good place for starting an industry which uses power-driven machinery? (3) The steel mills of Flanders and of the Central Plateau make chiefly finished products, such as tools and machinery. Do such products require more, or less, work upon each ton of iron ore than the heavy steel wares of Lorraine? Do you see why Lorraine prefers the industry which requires more ore and less work, and Flanders the industry which requires more work and less ore? (4) What have you learned about various large cities that helps you to understand why manufacturing is important in Paris (p. 49)? Do you see why Paris should specialize in manufactures which require more hand work and less raw material and coal than most other industries? (5) The manufacture of woolen goods in Flanders is one of the very old industries in Europe. Before important manufactures began in England, much wool was brought from Great Britain to be manufactured in Flanders. So many people were engaged in the work there that even in early days very careful agriculture was practiced in order to produce in the district enough food for the spinners and weavers. What great ad-

vantage has Flanders had for manufacturing in modern times (Fig. 66)?

Examples. — What examples can you now give of French manufactures which require much skill and work in proportion to the amount of material used?

A peep into the future. — In water power France ranks high among European countries. Britain, on the other hand, has relatively little. Can you explain, using Figures 24, 25, and 49, why France has a large amount of water power? The power of a river can be used year after year without becoming less. When most of England's coal has been used, there will still be as much water power in France as now. Thus far only a small part of France's power has been developed, partly because most of the power, of course, is in the mountains. Since it has become profitable to carry electricity long distances, the water power will be much more usable. The recent increasing use of it in the Grenoble district marks the beginning of a new era in France's manufactures. With its great resources of iron ore, its large supply of water power, and the skill and taste of its people, France is likely to become a still greater manufacturing nation.

Add to your list of differences between France and Britain the one you have learned from the preceding paragraph.

The Trade of France

What France buys and sells. — 1. What have you learned from your study of France which helps to explain the following facts? (1) France imports less food than Britain does. (2) France also imports less raw material to be used in its factories. (3) France exports fewer manufactured goods than Britain does. Can you state now several reasons for the facts shown in the graph in Figure 47?

2. In a recent year, the imports and exports of France were as follows:

	Value in Francs[1]	
	Imports	*Exports*
Food products	8,906,000,000	3,996,000,000
Raw materials	26,138,000,000	10,533,000,000
Manufactured goods	5,088,000,000	24,861,000,000

What reasons can you give why raw materials are the chief class of imports? Find by comparing the export and import figures whether France produces more food than is needed at home, or less than is needed. More manufactured products than are needed at home, or less than are needed.

3. Select from the following tables, and list in your notebook: (1) the chief raw materials which France imports; (2) the chief manufactured products which France exports. After each item on your lists write a reason or reasons which you think help to explain the import or export of that article. After each export in your list write also the name of one or more places in France from which that product might have come. After each import in your list write the name of one or more manufacturing districts in France in which that material might be used.

Chief exports of France in a recent year

	Value in Francs
Clothing	3,255,000,000
Silk manufactures	3,020,000,000
Cotton manufactures	2,533,000,000
Woolen manufactures	2,439,000,000
Automobiles	1,513,000,000
Iron and steel	1,406,000,000
Wool and wool waste	1,348,000,000
Machinery	1,146,000,000
Tools and other metal manufactures	1,094,000,000

Chief imports of France in a recent year

Cotton	3,860,000,000
Coal and coke	3,742,000,000
Wool	3,056,000,000
Cereals	1,911,000,000
Silk	1,888,000,000
Oilseeds and fruits	1,760,000,000
Coffee	1,342,000,000
Petroleum and petroleum products	1,213,000,000
Sugar	998,000,000

4. Find from the list of imports the three chief foods which France imports. Which of these does France not produce at home? Are you surprised to find that France imports large quantities of cereals and sugar? Although more wheat is raised in France than in any other country in Europe, the amount raised is not as much as the people of France use. The French people like white wheat bread, and so use large quantities of wheat flour. Also the sugar-beet fields of France do not produce enough sugar to supply so large a population.

5. France carries on a larger trade with Britain than with any other country. In addition to clothing, and silk and woolen cloth, the more important exports of manufactured goods from France to Britain include wine, silk ribbons, motor cars, ornamental feathers, and gloves. What French city does each of these manufactured articles suggest to you? Another important export from France to Britain is pine timber which is used for props in British mines. Name one part of France which might supply this

[1] The franc is a French unit of money.

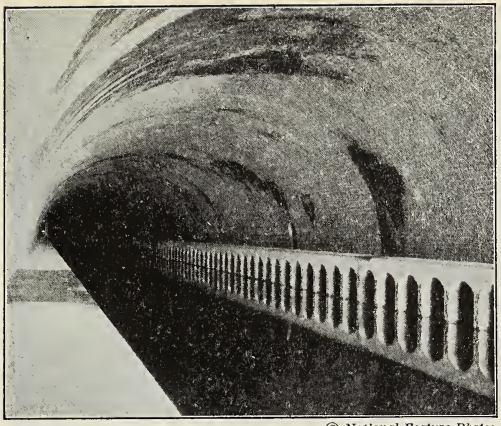


Figure 70 © National Feature Photos

timber for export. By far the most important import into France from Britain is coal.

Great French ports. — 1. The two ports of France which rank highest in the value of their commerce are Marseille and Havre. What land route leading to Marseille makes it possible for goods from northern France to reach this port easily (Fig. 49)? What water route leads from the interior of France to Havre? The Seine is the most useful of the main French rivers for navigation because it is fairly regular in flow and is not too swift. The Rhone, which is swifter, has not been very much used for navigation. Improvements are now in progress, however, which, when finished, will increase the usefulness of the Rhone greatly. A part of the work recently completed is the great tunnel shown in Figure 70, which connects the lower Rhone with the port of Marseille. Though the Rhone has been little used as a water route, the floor of its valley offers an easy route for roads and railroads. Can you state now one reason why Marseille and Havre are very important ports?

2. Cotton is the most important of the imports of Havre. Is most of the raw cotton used in northern or in southern France? From what country do you think much of the raw cotton probably comes? Why, then, does the cotton enter France chiefly by way of Havre, rather than by way of Marseille? Most of the raw silk enters at Marseille. What reasons can you suggest which help to explain this? On the other hand, Havre exports large quantities of manufactured silk and Marseille large amounts of manufactured cotton. Does this suggest that the manufactured silk goes chiefly to countries west of France, or south of it? The manufactured cotton? What reason can you suggest for the large import of oil-bearing seeds at Marseille? Of American grain and petroleum and British coal at Havre?

3. Many boats of moderate size, carrying heavy, bulky materials which are needed at Paris or at other points in the northern interior of France, go up the Seine past Havre and unload at the wharves of Rouen (Fig. 49). Do you, then, see why this city is a very important port for British coal and for petroleum, of both of which it receives much more than Havre?

4. Which of the great French lowlands would naturally ship from the port of Bordeaux a large part of such produce as it exports? Though Bordeaux has less than half as much commerce as Havre, it is, as the many ships in its harbor, shown in Figure 71, suggest, one of the more important ports of France. Explain why wines, rosin, and turpentine are important exports from Bordeaux.

France has many other ports, in addition to those you have studied. The more important of them are on the coast of the English Channel or the Atlantic. The greater part of the French commerce of the Mediterranean coast is handled by the one great port of Marseille. In addition to its sea trade, France carries on a large trade by land with its neighbors on the European continent.

France — A Country of Roads

The shortest route from sea to sea. — Find from the map in Figure 8 the shortest usable land route from the North Sea to the Mediterranean. Through what country does this route lie? More eastern routes from north to south across the continent are not only longer, but also more difficult than the route through France. Why (Fig. 8)? This route through the Rhone-Saône Valley and across the northern French lowlands has been a much traveled route since very early times.

An early highway. — More than two thousand years ago, Italy and Greece had become lands in which there were populous cities that were centers of wealth and learning and art. Northwestern Europe was then still a land of hunters and fishermen, herdsmen and farmers. Much of the land was still covered by forest, and towns were few and small.

Of all the Mediterranean cities, Rome (Fig. 8) grew to be the most important. All the

Figure 71

lands bordering the Mediterranean Sea were conquered by Roman soldiers. When the armies of Rome pushed northward into less civilized lands, they found the Rhone Valley route through France the easiest road to follow. So it happened that France, then called Gaul, became a part of the Roman Empire. A fine, straight road was built through the valley which became one of the important highways of the empire. There are still standing in towns of the southern Rhone Valley some of the beautiful Roman buildings of that day.

Other easy routes. — Find from the map in Figure 49 another north-south lowland route through France, west of the Central Plateau. Find also a lowland route between the Rhone and Garonne valleys; a way to travel from the Saône Valley into the Rhine Valley south of the Vosges highland. Another easy route passes around the northern end of the Vosges highland, connecting the Paris Basin and the Rhine Valley. The railroad and waterway between Paris and Strasbourg follow this route (Fig. 49). In Figure 72 you see a part of the canal which completes this waterway. Thus you see that all the plains of France are connected by easy roads. Even the Central Plateau is not off the great highways. The head of the deep Loire Valley extends so far south into the plateau that only a short road over the highland was needed to connect it with the Rhone trough at Lyon. All of these routes helped Roman trade and Roman culture to spread through Gaul.

After the power of Rome declined, Gaul was no longer a part of the empire, but the highways through the country continued to be important trade routes. Towns grew along the Roman roads, just as towns grow along railroads to-day. The people of Gaul had learned much of Roman culture which was never wholly forgotten. Thus, the fact that the best route between the north and south of Europe and many other good routes all ran through France, helped civilization to develop there faster than in other lands of northern and western Europe.

Off the highways. — There is, however, one part of France which the great highways do not cross. This is Brittany. The main, through roads from north to south, and those from the English Channel to the Rhone

Figure 72 © Ewing Galloway

and Rhine, leave Brittany untouched. Its people have had little contact with those of other parts of France. Moreover, people in some sections of Brittany live much apart from others in the peninsula. The roads within the peninsula are not so good as those in most other parts of France. The frequent rains, the poor drainage underground, the sticky soil, all tend to keep many of the roads of Brittany muddy. Do these facts help you to understand why Brittany is a land of old customs — one different in many ways from the rest of France?

The end of the road. — You would be interested on a journey through France to-day to notice the contrasts between the short, dark-haired people common in the south, the taller, fairer northerners, and the people of intermediate height and coloring numerous in the Central Plateau and Brittany.

It will help you to understand the mixture of various peoples in France if you think of the country as the meeting place of several roads from the East. Before western Europe became densely settled, people from the dry lands of central Asia moved westward from time to time through many centuries to settle in the rainier lands of Europe. Some of these people followed the shores of the Mediterranean, some a road along the great plain of northern Europe (Fig. 8), and others east-west routes which lay between these two. But whatever the road, if they followed it far enough, they came at last to France. Here, on the western edge of Europe, roads from the east must end. Thus there came to be in France long ago a mixture of peoples not only of varied appearance, but also of varied abilities and varied knowledge. France became a meeting place for many different ideas. Can

you see that the various peoples of France, each with its own ideas and its own kinds of skill, might help to make France a country in which people learned early to do many kinds of things well? The fact, then, that France is a meeting place of roads, also helped it to become a highly civilized country earlier than other lands of western or northern Europe.

Roads and manufactures. — Do you understand better now what you learned about some of the manufactures of France? Partly because France became a highly civilized country earlier than its neighbors, its workers learned early to make many of the things which a wealthy and highly civilized people demand — beautiful fabrics, jewelry, well designed articles of clothing. When there came to be a great demand for such things in neighboring countries, the French had already learned to make them skillfully. They had become a people known for their artistic taste. This taste was shown as much by the character of their manufactures as by the beauty of such great cathedrals as that of Chartres. In spite of the later growth of skilled industries in many other countries, France still is famous for the taste and workmanship shown by many of its products.

The city where French roads meet. — A glance at the main railroads in France will show you that most of them focus on Paris (Fig. 49). You have seen that France is a country of many well-traveled roads. You may think of Paris as the city at which French roads meet. Long before the days of railroads Paris was a meeting place of roads — roads overland, and routes by water. Notice that the chief tributaries of the Seine join it near Paris. Which of the routes mentioned on page 74 lead toward or through Paris? From every direction, Paris, at the heart of the Paris Basin, can be approached easily. The roads leading toward it like the spokes of a great wheel have helped to make Paris the capital and industrial center of France. They also have helped greatly to make "Greater Paris," as the city and its suburbs sometimes are called, the largest city on the mainland of Europe.

Figure 73 shows you the heart of the city of Paris. You are looking up the Seine, eastward across the city. The nearer and larger of the two islands shown in the picture was the original site of the town. Here, even before the Roman conquest of Gaul, there was a village of boatmen and fishermen. Their settlement was easy to reach by way of the river, and, because of the island which divided the stream, the Seine could be forded or bridged more readily here than above or below the island. To the higher ground bordering the south bank of the river settlement spread as the city on the island grew. It was many years before the low, marshy land north of the Seine was much used. Though the island forms only a very small part of modern Paris, the people still call it "La Cité" — The City. Find it on the map of Paris in Figure 240. Find in Figure 73, near the eastern end of the island, the large building with two square towers. This is Notre Dame, the great cathedral of Paris.

Find on the map of Paris in Figure 240 the streets shown by lines heavier than those used for other streets. Those streets which form the smaller oval are called the "Inner Boulevards," those which form the larger oval the "Outer Boulevards." These mark places where, at different times in the growth of the city, its outer walls have stood. Find in Figure 73, at the right side of the picture, the broad tree-bordered avenue which extends from the lower edge of the picture to a bridge across the Seine. This is a part of the "Inner Boulevards." These form very convenient thoroughfares for traveling quickly through the tangle of old, narrow streets which crowd much of the central part of Paris. The last wall of Paris — at the edge of the area in darker tan on the map of the city in Figure 240 — is even now being destroyed. The life of the city has spread far beyond this enclosure,

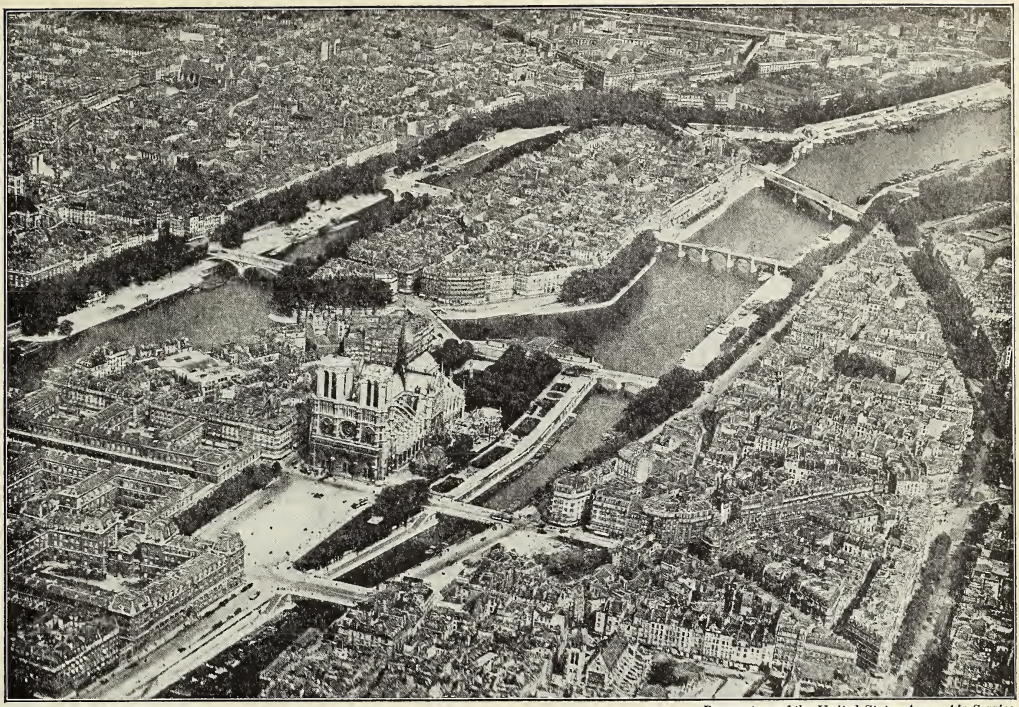


Figure 73 *By courtesy of the United States Army Air Service*

and parts of the suburbs outside the wall are now very densely settled.

The part of Paris in which the life of the city now centers is the semi-circle of low, level land on the north side of the river, enclosed by the Seine and the Inner Boulevards (Fig. 240). You see a small part of this area in the upper left-hand corner of Figure 73. Along these boulevards, or between the boulevards and the river, are most of the principal shops and stores, the great central market, the city hall, the larger hotels, the more important banks, the newspaper offices, the theaters, and the famous Paris Opera. The river here flows between stone quays, lined by large buildings or spacious gardens. Parallel to the river, on the north, runs the Rue de Rivoli, lined on the north with stores, and thronged with the many tourists who seek the shops of Paris. Westward beyond the circle of the Inner Boulevards, the Rue de Rivoli is continued as a broad, tree-bordered avenue called the Champs Élysées, which leads through the fashionable residence district of Paris.

On the south bank of the Seine, opposite La Cité, is the so-called Latin Quarter. You see a part of this district in the foreground in Figure 73, between the river and the bottom of the picture. In the days when most of the city was confined to the island, this district on the outskirts of the town, yet conveniently near the center, became the site of various schools. It is still the Paris of students and artists. In the Latin Quarter are the College of France, the great Sorbonne University, the famous School of Fine Arts, and many of the large publishing houses. Farther west along the Seine, near where the Inner Boulevards cross the river (Fig. 240), are the fine buildings which correspond to the Houses of Parliament in London.

Upstream and downstream from the center of the city, where the Seine is bordered by palaces and gardens, the banks of the river are crowded with wharves. Notice the boats along the wharves in the upper right-hand corner of the picture in Figure 73. Find on the map in Figure 240 the canal which connects the river above the islands with a portion of the river farther north. This canal, too, is lined with busy wharves. In the portion of Paris near this canal are crowded many factories and workshops. Why is this a good place for factories? Many other factories are in the suburbs, where land is less expensive than that near the center of the city. These districts use wharves along the Seine outside of the city for obtaining coal and other heavy freight. Especially the larger plants, such as automobile factories, are in the suburbs, while the smaller workshops of skilled artisans tend to cling to the inner city.

The Seine is used so much in supplying Paris with the things which a great city needs that in a recent year the wharves of Paris handled more tons of goods than those of Marseille. Some wharves specialize in the handling of wine, some in coal and wood, and others in manufactured products. Wheat, oil, stone, and sand are cargoes handled at other wharves. By far the greater part of the traffic is in coal and building materials. The coal is chiefly either English coal, brought up the Seine from Havre or Rouen, or coal from the large northern coal field of France, brought by river and canal to the Seine below Paris. The ability to obtain coal cheaply by water has helped to make Paris the greatest of French manufacturing cities. Before the days of railroads, much of the food of Paris came into the city by way of the Seine. Now most of the food, as well as much of the raw material used in industry, is brought by the many railroads.

Along the gay boulevards, with their theaters, their pleasant little sidewalk cafés, their bright flower booths, and their endless streams of motor cars, one thinks of Paris as a city of pleasure. Looking down the wooded lengths of the Champs Élysées, or walking among the beautiful buildings and gardens of the Seine, one thinks of Paris as a city of beauty. In the Latin Quarter, one knows it as a center of learning. In the crowded manufacturing districts of the east side, one remembers that Paris is a city of work, the industrial center of France. Paris is the capital city of France — the center not only of government but of the work and play, the art and culture, of the nation.

Summary Exercises

Completing your list. — If you have found any differences between France and Britain which you had not listed, add them now to your list.

A summary paragraph. — Fill each blank in the following paragraph with one of these words which fits the case: "more," "less," "longer," "lower." Copy the paragraph in your notebook.

France is a great agricultural country. Its latitude is —— than that of Britain. Its summers, thus, are —— and warmer than those of Britain. Also, France has much —— land than Britain has which is low enough for farming. These facts help to explain why France is —— important as a farming country than is Britain. Manufacturing and commerce, on the other hand, are —— important in France than they are in Britain. The fact that far —— coal is mined in France than in Britain helps to explain the smaller importance of manufacturing in France. The fact that France's commerce is —— than that of Britain is explained partly by the smaller importance of manufacturing in France and partly by the fact that France imports —— food than does Britain. The imports of food are smaller, in part because France produces much —— food than Britain does, and, in part, because the number of people in France is —— than that in Britain.

Relationships. — The first nine of the following paragraphs suggest some geographic relationships which you should have discovered in your study of France. Following them is a list of human items. Copy each, and in each case after the arrow name one or more natural conditions which help to explain that item. You then should have twenty paragraphs suggesting relationships concerning France to copy in your notebook for later use. There are, of course, many other relationships which might be added.

1. Raising of a large amount of wheat in France ⟶ extensive lowlands with suitable soils, summers in most parts long enough and sunny enough for wheat to be a safe crop.

2. Production of a large amount of wine ⟶ many sunny slopes and fertile lowlands; summers, except in northwestern France, long enough and sunny enough for grapes to ripen.

3. Raising of corn in the Saône and Garonne valleys ⟶ long, warm, moist summers; fertile lowlands.

4. Olive orchards in southern Rhone Valley ⟶ mild winters; long, warm, dry summers.

5. Farm houses grouped in villages in Beauce ⟶ porous rock, making very deep wells necessary.

6. Manufacture of silk in Lyon ⟶ surrounding lowland suited for mulberry trees; easy lowland route leading to Mediterranean coast, where raw silk can be imported; coal on edge of Central Plateau near-by.

7. Importance of Marseille and Havre as the chief French seaports ⟶ good routes leading toward them from rich interior lowlands, good harbors.

8. Early development of civilization in France ⟶ a short, easy route leading through France from the Mediterranean to the North Sea; many other easy, lowland routes; position at the western edge of Europe, where various routes from the East meet.

9. The growth of Paris to very great size ⟶ position near center of a fertile basin, easy routes leading to it from every direction.

10. Export of wine from Bordeaux ⟶

11. Backwardness of Brittany ⟶

12. Manufacture of heavy iron and steel wares in Lorraine ⟶

13. Manufacture of gloves in Grenoble ⟶

14. Manufacture of power machinery in Grenoble ⟶

15. Importance of dairy farming in Brittany ⟶

16. Sheep raising in parts of Champagne and the Central Plateau ⟶

17. Grouping of villages at the foot of the Côte d'Or ⟶

18. Manufacture of oil and soap in Marseille ⟶

19. Manufacture of linen in northern France ⟶

20. Export of rosin and turpentine from Bordeaux ⟶

Things to explain. — 1. What are the more densely settled parts of France (Fig. 6)? What facts have you learned about France which help to explain why these are so densely settled? What other striking facts does the map in Figure 6 show about France? What reasons have you found for these facts?

2. How do you explain the following differences in customs in different parts of France? (1) Cider is used almost as much in Brittany as wine is in other parts of France. (2) Butter is used more commonly in northern France than in southern France; olive oil is used more commonly in southern France than in northern France. (3) Chestnut flour is commonly used in some parts of the Central Plateau.

A hide-and-seek game. — To prepare for this game, each pupil makes a list of five facts he has learned about France, without mentioning the name of the country. For example, "This country produces more wine than any other country in the world." He then "hides" in the list a fact which is true of *Britain*, but not of France. For example, "Its capital is the world's largest city." This "hidden" fact may be first in one pupil's list, third in another's, and so on. Number the six facts stated in your list. The pupil who first finishes a list which the teacher marks correct may be "it" first.

To play the game, the pupil who first is "it" stands before the class and reads twice, distinctly, the six facts he has listed, stating the number of each before he reads it. Each of the other pupils puts down on a piece of paper the number of the fact which he thinks is about Britain, instead of about France. The leader calls on some one to tell the number of the fact he has chosen. If that person has found the right one, he may next read his list. If not, the leader calls on others till he finds some one who has "spied" correctly the statement about Britain.

An alphabet for France. — The description following *A* below suggests a word beginning with *A*, the one following *B* a word beginning with *B*, and so on. After you have named these words, complete this "alphabet," *as nearly as you can*, by writing for other places or things in France similar descriptions which will suggest words beginning with other letters. The pupil who makes the most nearly complete alphabet which is correct wins the game.

A. Mountains forming a part of the eastern boundary of France.

B. A French seaport from which much wine is shipped.

C. Part of the Paris Basin known for its vineyards.

D. An industry important in Brittany.

E. A "narrow sea" between France and England.

F. A crop raised in Brittany and Flanders.

G. The "glove" city of France.

H. The port at the mouth of the Seine.

Figure 74

GERMANY

Germany's capital city. — On the map in Figure 49 find Berlin, the capital and largest city of Germany.

The population of Berlin in 1925 was more than four millions. On the European continent it has no rival in size except Paris. Its work shops and factories employ more than half a million people. On its railroads and waterways about twenty million tons of freight are handled within the city in a year. The area of the city is more than three hundred square miles. How does its area compare with the areas of the other cities of the European mainland which are shown in Figure 240? Its network of streets spreads broadly over a low, almost level plain.

Find the Spree River on the map of Berlin in Figure 240. Near the center of the city find the island between two channels of the river. Find also the part of the city called Charlottenburg, and the straight street leading from Charlottenburg eastward through a large park to the island. The part of this street which lies between the park and the island is called "Unter den Linden"; it is one of the famous avenues of the world. In the right foreground of the view in Figure 74, you can see the eastern end of this broad avenue and the bridge which joins it to the island. The street is lined with imposing public buildings, and along part of it stand many beautiful linden trees. Find the tall, domed cathedral a little to the left of the center of the picture. The large building to the right of it in the picture is the former imperial palace, which is now used as a museum. Can you see part of the river on the far side of the island on which these buildings stand?

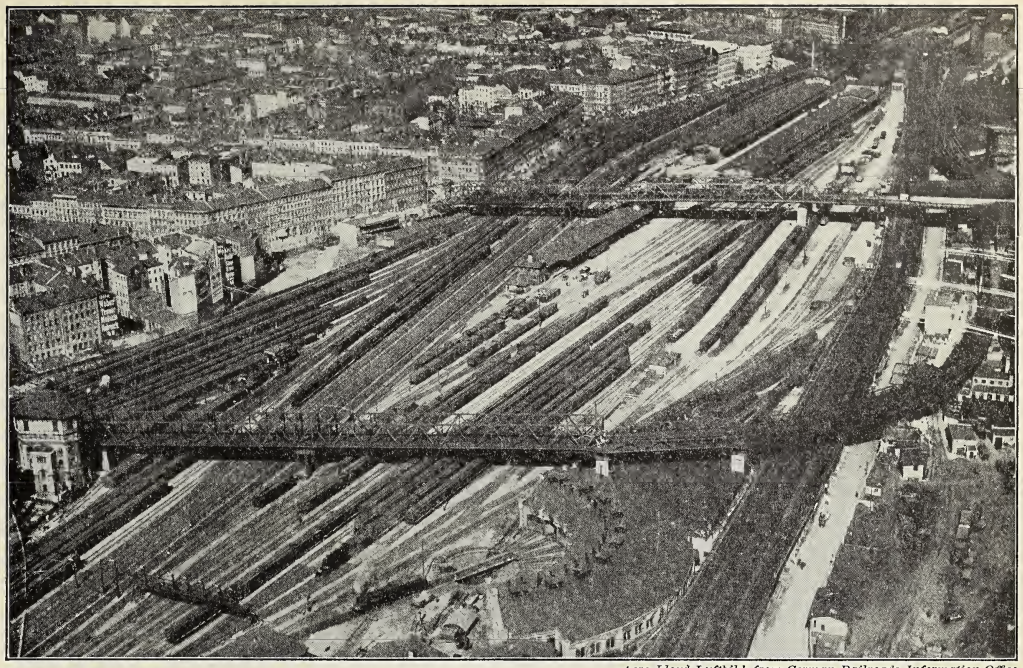


Figure 75 *Aero Lloyd Luftbild, from German Railroads Information Office*

A part along the nearer side of the island?

On the island, or within a mile of it, are many of the handsome buildings which help to make Berlin a city of much splendor. Among them are the university buildings, the library, the city hall, the government bank, the state theater, and the opera house. West and southwest of the island is the chief business section. Its streets are lined by fashionable shops, substantial banks, and palatial hotels. Farther west is the district of better homes. In the north, east, and southeast are the poorer residence districts and many factories.

There are more than three thousand establishments in Berlin for the manufacture of machinery and tools. This work is the city's leading industry, employing more than 200,000 workers. More than 60,000 people are engaged in the making of clothing. Work in metals and wood, the printing and binding of books, the manufacture of paper, the weaving and dyeing of cloth, the manufacture of dyes and other chemicals, of wares of leather and rubber and glass are other important industries.

What does the view in Figure 75 suggest to you about Berlin? Supplies for Berlin factories and food for its millions of people are brought by the many railroads which focus on the city (Fig. 49), and by the boats which ply on its several waterways. The map in Figure 49 helps you to understand why the Spree, though small, is a busy river. To what main river do its waters flow? What great river flows northward a short distance east of Berlin? Canals connect the Spree with the Oder. Thus boats can reach Berlin from either the Elbe or the Oder. Two canals which have been built across Berlin south of the Spree make the traffic on the river through the heart of the city less crowded than it otherwise would be. Find these canals on the map of Berlin in Figure 240.

Wharves along their banks, as well as the river wharves, receive shipments of coal, raw materials of many kinds for the city's industries, and foodstuffs. The greater part of the coal brought by water comes from mines in southeastern Germany (Fig. 66), in the upper valley of the Oder. Coal imported from England is brought by way of the lower Oder and thence by canal to Berlin. In spite of the importance of the traffic on its waterways, Berlin's receipts and shipments of goods by rail are several times larger than those by water.

A modern city. — Do not the views in Figures 74 and 75 give you impressions of newness, neatness, and good management? Berlin is a very clean and well-kept city. Most of its streets are broad, well-paved, and well-lighted. Even the poorer parts of Berlin are better built than those of most large cities. Yet in the midst of its well-kept streets and fine buildings one misses the charm which the quaint houses, rare old buildings, and picturesque courtyards of earlier days give to many parts of London and Paris. *Almost all of Berlin's public buildings are of recent date; its university is young, compared with most other great European universities; its cathedral is new. There is little to remind one of a long past.* From its shops and factories to its schools and churches Berlin is modern.

This does not mean that the city was founded recently, but that it was long of little importance. Early in the seventeenth century Paris had become a city of more than 400,000 people, while Berlin was yet a town of less than 20,000. Even in the middle of the nineteenth century Paris was more than twice as large as the German capital. Only in recent time has Berlin become a very great city.

A study of the country which has made Berlin its capital will help you to understand the slowness of Berlin's growth in earlier years, and its very rapid growth later. It is now one of the greater cities of the world.

Pictures of Germany's Great Northern Plain

Lüneburg Heath. — The great plain in the midst of which Berlin stands occupies about what fraction of all Germany (Fig. 49)? South of the lower Elbe River, in the western portion of the long German plain, is a district known as Lüneburg Heath (Fig. 49). Though the surface of the heath is only a few hundred feet above sea level, its edges rise sharply above the very low lands which border it. Some parts of the area are hilly, but others, like the land in the foreground of Figure 76, are nearly flat. Within the district there are wide stretches where the surface is covered by a dull, brown-green carpet of heather, with here and there clumps of juniper bushes (Fig. 76). In some places, large boulders lie on the surface of the heath. In others, where the heather carpet is thin, there are low hillocks of white sand. In August, when the purple heather blooms, the moor is aflame with color. In winter, the surface is often white with snow.

Not long ago, most of the surface of the Lüneburg upland was heath. Here and there were cottages surrounded by cultivated land, where farmers raised scant crops of buckwheat in the poor, sandy soil, and kept many bees that made honey from the blossoms of the heather and buckwheat. The chief work on the moorland, however, was the tending of sheep. Notice the shepherd with his flock in Figure 76. Though, as this picture shows, sheep still graze on the moors, and though the lonely, thatched huts of shepherds still lend picturesqueness to the landscape, more of the land recently has been put in cultivation. The soil in the better parts of the area has been improved by fertilizers, and various crops are raised. Among them are rye, oats, and potatoes. Some tracts have been planted with pine trees. Sheep herding has declined because of the increased use of land for farming, and also because,

Figure 76

By courtesy of the German Railroads Information Office

as the land was improved, better pastures and varied crops made profitable the raising of cattle, horses, and pigs. In spite of improvements, the district, even yet, is rather sparsely populated.

East Prussia. — Find on the map in Figure 49 the portion of the great northern plain which is called East Prussia. It is a part of Germany, although separated from the remainder of the country by a strip of foreign land along the lower Vistula River. In the southern half of East Prussia the plain is a low, hilly upland, the surface of which is sprinkled with lakes of many shapes and sizes. Some lie in broad, shallow hollows, bordered by fields of rye and by meadows. Others are enclosed by steep slopes cloaked with dense forest. From this lake-dotted upland, a broad stretch of lower land, broken by few hills, extends northward to the sea. Here you could ride for many miles over almost level land, past large fields of rye, potatoes, and oats, among which are scattered areas of woodland or pasture. You might pass ox teams hauling grain to some market town; clusters of farm buildings (Fig. 77) and laborers' cottages grouped a little apart from the castle-like house of the owner of a large estate; and little villages, silent and sleepy because both men and women are at work in the fields.

Find along the East Prussian coast on the map in Figure 49 the Frisches Haff and Kurisches Haff, long lagoons almost cut off from the open sea by narrow bars of sand. Between the two lagoons the coast juts northward, forming the bold, cliff-bordered headland shown in Figure 78. The bars

Figure 77 *By courtesy of the German Railroads Information Office*

Figure 78 *By courtesy of the German Railroads Information Office*

which border the lagoons are covered, for the most part, with dunes on which pines have been planted. Here and there are small fishing villages, some of which serve also as vacation resorts for summer visitors. Between the villages, lonely fishermen's huts dot the narrow strip of sand between the sea and the dark wall of the dune forests.

Since the waters of the " haffs " are shallow, there are few harbors along this coast. However, Königsberg (Fig. 49), to which a deeper waterway has been dredged, is an important port.

The Spree Forest. — If you should follow the Spree River upstream from Berlin you would reach, about fifty miles southeast of the city, a surprising district which is called the Spree Forest (Fig. 49). The picture in Figure 79 was taken in this " forest." Once the whole district was a dense woodland. Now in many places the land is cleared, so that " forest " is no longer a good name for much of it. The Spree River here divides into many small streams, thus cutting the land into hundreds of islands. Some of the islands are so small that each is occupied by a single house, while the many streams take the place of village streets. In summer, the people go from place to place in flat-bottomed boats, which they propel by poles (Fig. 79). You might see them going to church or to market in this way. The children go to school by

Figure 79 © Ewing Galloway

boat. Indeed, you might even see cows being taken by boat to pasture. In winter, as you might suppose, skates and sleds take the place of boats.

In the eastern part of the Spree Forest live people who differ in language and in various customs from the Germans roundabout. The oddity of the dress of the women reminds one of Brittany. Shut in by the forest and the network of streams, these people have lived much apart from others and so have kept various earlier customs and a language which in days gone by was spoken much more widely.

Eels trapped in the many streams form an important part of the diet of the people. The land between the waterways is low, and in many places wet. However, there are grasslands which provide good pasture for cattle and hogs, and some flax is raised on the better land. Where there is fertile soil that is not too wet, there is much gardening. Cucumbers, for example, which do well in moist soil, are raised in large quantities in the district. There still are parts of the district, however, where one seems to be in the midst of a great, silent forest.

A land of many streams. — The interesting Spree Forest is not a very important part of Germany, but it gives an idea of the *former* condition of *much* of the land in the central portion of the German plain. Though there was not elsewhere so intricate a network of streams as in the Spree Forest, there were, along the many rivers, wide areas of marsh and of forest. Among these there were moorland tracts of almost barren sand. Much work has been done in draining the marshes and in fertilizing the poor soil. Great areas of moor and marsh have been changed into meadows which feed large numbers of cattle, into market gardens, or into farmland which yields crops of rye, potatoes, and oats. Much of the original woodland is used as farmland. Pines, however, have been planted in many of the sandy areas, so that the district is still rich in timber. It is in the heart of this district of marsh, of forest, and of numer-

ous streams that the city of Berlin has grown.

Rye, oats, and potatoes. — 1. State one or more reasons for the scarcity of good farmland in Lüneburg Heath. In the Spree Forest. In the southern part of East Prussia. In the lowland near Berlin.

2. What three crops did you find mentioned most frequently in the descriptions? Consult Figures 28, 29, and 31, to find whether or not these crops are important in other portions of the plain as well as in those described.

3. How does the importance of rye in the German plain compare with its importance in France and in Britain (Fig. 29)? Are potatoes more important in the German plain than in France and Britain, or less important (Fig. 31)? Compare similarly the importance of oats in the German plain with their importance in France and Britain (Fig. 28).

4. What does the use of a large amount of the land for rye suggest about the soil of the German plain (p. 27)? Potatoes also do well in sandy soil.

5. Compare the latitude of the German plain with that of the French lowlands. The English lowlands. How does the latitude of the German plain help to explain why oats are a good crop to raise there?

Poor farmlands. — As question four should have suggested, not only Lüneburg Heath and some portions of the plain near Berlin but also various other parts of the plain have poor, sandy soil. For example, other sandy uplands similar to Lüneburg Heath extend eastward south of Berlin. Also there are other portions of the plain besides the swamps of the Spree Forest and the marshes near Berlin where drainage is a serious problem. Moreover, the broad belt of many hills and lakes, of which you saw a part in southern East Prussia, extends westward north of Berlin almost to the mouth of the Elbe. Poor soil, wide stretches of marsh and swamp, many hills and many lakes, all have helped to make good farmland scarce in much of the German plain. Moreover, as you should have suspected from its latitude, the German plain has not very long nor very warm summers. In the eastern portion of the plain, which is less affected than areas farther west by winds from the Atlantic, the winters are long and cold. Can you see reasons why a great city did not develop in early times on the site of Berlin in the heart of the German plain?

A Great Agricultural Country

Some surprising facts. — In view of the poor quality of the farmland in a large part of the German plain, some facts about Germany's agriculture will surprise you. 1. It is estimated that, on the average, the German farmer produces enough food on one hundred acres of cultivated land for seventy to seventy-five persons, while on the same area the British farmer produces only enough for forty to forty-five persons. 2. The following table shows in metric tons[1] the amounts of the chief crops raised on French and German farms during a recent year.

	France	Germany
Wheat	7,500,000	2,897,000
Oats	4,891,000	6,106,000
Rye	928,000	6,681,000
Barley	980,000	2,361,000
Corn	322,000	
Potatoes	9,919,000	32,579,000
Sugar beets	3,787,000	8,696,000
Wine (gals.)	1,606,000,000	39,686,000

The table below shows the numbers of horses, cattle, sheep, and pigs on French and German farms in a recent year.

Horses	2,859,400	3,855,176
Cattle	14,024,960	17,326,098
Sheep	10,171,520	5,735,147
Pigs	5,801,530	16,894,874

After reading these tables, do you not think that Germany deserves to be ranked with France as a very important agricultural country? The large figures for Germany seem the more striking in view of the fact that Germany's area is only about six-sevenths that of France. You should notice, however, that as a *wheat* country Germany

[1] A metric ton is a little more than 2200 pounds.

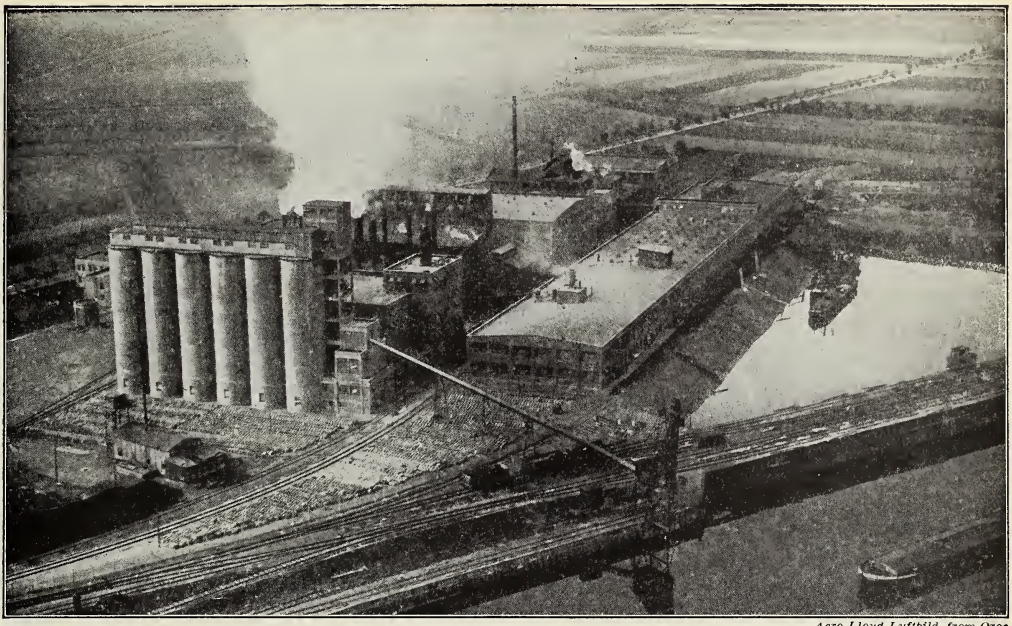


Figure 80 *Aero Lloyd Luftbild, from Oroc*

ranks far below France. What reason does the map in Figure 49 suggest to you for the fact that Germany produces almost no corn, and far less wine than France? As you study further, look for any facts which will help to explain Germany's importance as a farming country in spite of the poor quality of much of the land in its great lowland.

"Wheat, sugar-beet" lands. — By comparing Figures 64 and 49, find on Figure 49 the chief two sugar-beet raising areas of Germany. Are these areas parts of the great plain, or parts of the highlands of southern Germany? How do the more important wheat-raising areas in Germany compare in location with the chief sugar-beet areas (Figs. 26, 27, and 64)? One might think of these two areas, then, as the "wheat, sugar-beet" districts of Germany, just as we think of the greater part of the northern plain as the "rye, oats, potato" district. You will see from Figures 28, 29, and 31, however, that the "wheat, sugar-beet" districts also produce large amounts of rye, oats, and potatoes. Find from the following paragraph why wheat and sugar beets are more important in these districts than elsewhere in the plain.

Fringe lands of the great plain. — Here and there tongues of lowland extend the great plain of Germany southward into the highlands. The longest of these tongues follows the Oder River between the Sudetes Mountains and the plateau of southern Poland. Another lowland, triangle shaped, lies between the Erzgebirge and the Harz Mountains, and is occupied by the valleys of the middle Elbe and its tributaries. The picture in Figure 80 was taken in this lowland, on the bank of the Elbe. Notice the broad stretch of level fields in the background. A third lowland, funnel shaped, extends southward along the Rhine, past the city of Cologne. Find these three lowlands on the map in Figure 49. They sometimes are called the "Silesian Trough," the "Saxony Triangle," and the "Rhine Funnel." The more eastern of the two "wheat, sugar-beet" districts that you found on the maps corresponds with which of these lowlands? The larger "wheat, sugar-beet" district of central Germany includes part of which lowland?

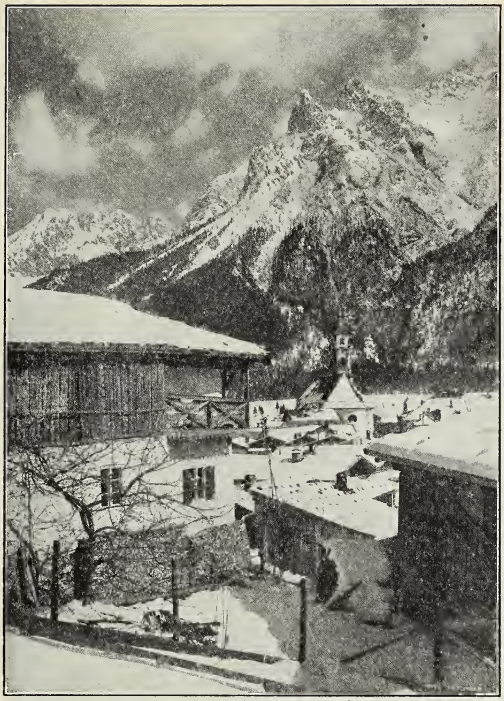
Figure 81

This wheat-sugar area also extends westward into the many valleys which cut the highland west of the Saxony Triangle, and northward into the adjoining portion of the great plain. You will see from Figures 26, 27, and 64 that the Rhine Funnel, too, produces wheat and sugar beets, though it is not so important a producer as the two more eastern districts.

Within these fringe lands of the great northern plain, the soil is much more fertile than that in most parts of the plain. The fertility of the soil helps to make wheat and sugar beets important crops. These two crops are raised here and there in other parts of the plain, in places where patches of good soil make them profitable.

The Black Forest. — Southern Germany, as you have seen from the map (Fig. 49), consists largely of highlands. There are many upland blocks separated by stretches of lower plateau, or, in some cases, by deep, flat-floored valleys. Figure 81 is a view in southern Germany. What kind of trees are growing in the district? Do you see why "Black Forest" is a good name for the highland shown in this picture? Find the Black Forest on the map (Fig. 49). It is one of the parts of Germany which many tourists visit. What reasons for this does Figure 81 suggest to you?

Treeless lands within the forest. — Not all of the Black Forest highland is densely wooded. Much of the land in the valleys has been cleared, and is now tilled land or meadow. In some of the lower parts of the highland, even the upland surfaces between the valleys contain farmland. Barley, rye,



By courtesy of the German Railroads Information Office

Figure 82

and potatoes are raised in the higher fields, while near the lower ends of some of the valleys many slopes are covered with vineyards. The uppermost parts of the highland lie above the tree line. At a height of about four thousand feet the dense forests of fir and pine give way to low bushes and dwarf firs. Above these, there are meadows similar to those of the Alps, and scattered areas of moorland. In winter, these high pastures are buried deep in snow. In summer, they feed herds of cattle which are driven up to them in late spring from the lower valleys.

A land of hard work. — Most of the families in the Black Forest must work hard to make a living. It is hard work to cultivate the hilly land, and some of the soil is too thin and poor to yield good crops. The father of the family may work part of the time at lumbering or charcoal making in the forest to add to his earnings from his farm. In winter weather when there is no work to be done in the fields, the men, as well as the women and sometimes also the children, make for sale articles of carved wood or of woven straw. The Black Forest has long been famous for the wooden clocks, especially cuckoo clocks, made by many of its people. Many clocks now are made in factories in towns, but some are still manufactured in the homes. The making of musical instruments, straw hats, or baskets, keeps some families busy. Sometimes the father, mother, and children sit all day long around a big table, working upon articles for sale.

Making a living in other southern highlands. — In other highlands of southern Germany life is in many ways similar to that in the Black Forest. Figure 82 shows a view in the German portion of the Alps (Fig. 49). Find in the picture several signs that in this district also there is much woodland; a sign that here, too, winters are cold. What suggests that good farmland is scarce?

In spite of the difficulty of farming, population in some of the highland districts is surprisingly dense. This is in part accounted for by the former abundance of metal ores there. Find again on the map in Figure 49 the Erzgebirge, in southeastern Germany. This name means in English "ore mountains." Silver ore once was abundant in these mountains, and a large population depended for a living upon mining it. In the Harz Mountains (Fig. 49), the mining of ores of silver, lead, and iron began centuries ago. In many places in the highlands which formerly were sources of metals, the greater part of the ore has been mined, and people have been forced to find other ways of making a living. In some of these districts, household industries have taken the place of mining.

In some highland districts which never were rich in ore, home industries serve, as does clock making in the Black Forest, to increase the small family incomes from farm work or

Figure 83 *Atlantic Photo Company, from German Railroads Information Office*

lumbering. To-day, some manufacturing in these districts is done in factories. Among the industries important in parts of the German highlands are weaving, the making of embroidery and lace, the manufacture of glass, and work in iron. The founding of the glass industry was favored by local quartz rock, and that of the iron industry by local supplies of the ore. Both were helped by plentiful wood for fuel. Why is the making of lace and embroidery, which require much work on little material, suited to a highland district?

Toyland. — One of the more interesting of the home industries of southern Germany is the making of toys. Have you noticed how many of the toys you have seen at Christmas time were made in Germany? Many German-made toys come from the Thuringian Forest (Fig. 49). Figure 83 shows you one of the toy-making villages in that highland. In many of the homes of this village the entire family works at toy making. What raw material do the people of this mountain village have near-by for making toys? Formerly, most of the toys made in the Thuringian Forest were fashioned out of wood from the forest trees at hand, but now the industry is so well established that it pays to bring into the mountains various materials for making playthings. Toys from the Thuringian Forest and other highland districts of southern Germany are exported to many countries.

Other work. — Some people living in poor districts in the German highlands add to their income by raising geese, which feed in the hill pastures. In the Harz Mountains, many families make money by selling canary birds which they rear in their houses. Since rail-

roads have made it easier to reach the highlands, many people there find employment in supplying the wants of tourists.

The poverty of the mountains. — In spite of the various ways they have found to earn money, many people in the mountainous districts make only a poor living. The manufacturing work done in the homes does not pay very well. Many a meal consists of only potatoes and rye bread. However, it is pleasanter in many ways for these people to live in their own cottages in this beautiful mountain country than it would be to live in the crowded tenement districts of cities.

Fertile farms in sunny valleys. — In sharp contrast to the higher lands of southern Germany are the valleys and some of the low plateaus which separate the blocks of higher land. These valleys have warmer summers than any other part of Germany. Why are summers here warmer than in the adjoining highlands? Why warmer than in the great northern plain? Figure 84 shows one of these fertile valleys. Notice the distant fields on the surface of the level plateau to the left of the valley, and those on the sloping valley walls and the valley floor. Can you tell from the picture for what kinds of crops any of the fields are used? The shocks of grain on the valley floor and along the lower slope near the left-hand side of the picture are probably wheat or barley. Some of the trees near the houses are fruit trees. Besides orchards and grain fields there are vineyards on the sunny slopes of some of the valleys. Some of the valleys are wider than the one shown in Figure 84 and contain more fertile lowland. Widest of all is a part of the valley of the Rhine (*Journeys in Distant Lands*, p. 99).

Finding reasons. — What facts have you learned from your study of southern Germany which make the agricultural importance of Germany *difficult* to explain? What facts have you learned about central and southern Germany which *help* to explain Germany's large crops? The fertile fringe lands and southern valleys, do not, however, form a large part of the whole country. Still other reasons are needed to explain the large total production of German farms.

Making wet lands dry. — In the descriptions of lands in the northern plain of Germany what two ways of improving land and making it more productive were mentioned? The drainage of wet lands there began several centuries ago, when people from the Netherlands were induced to settle near Berlin. The work begun by these settlers, who, like many of their countrymen, had had experience in draining wet lands (*Journeys in Distant Lands*, p. 103), was extended later to other parts of the great plain. Thus many acres of waste land were gradually made productive.

Making poor soil fertile. — Germany owns great deposits of a mineral fertilizer called *potash*, which is mined in the neighborhood of Stassfurt (Fig. 49), near the edge of the Saxony Triangle. In a recent year, more than five-sixths of all the potash mined in the world came from Germany. German farmers use large amounts of potash and of other fertilizers to enrich the poor, sandy soil which is so common in Germany.

Learning to farm well. — A great deal of care is taken in Germany to select crops that are best suited to the land and to cultivate the soil thoroughly. Many agricultural schools have been founded, and these have helped to teach the farmers how to use their land so as to get the largest possible crops.

How the forests help. — The German government has been very careful to preserve forests on steep slopes which would not make good farmland or rich pasture land, and to plant trees on many poor, sandy areas in the lowlands. Germany has about ten times as much forest land as Great Britain and Ireland together have, and six million acres more of it than France. Many farmers in the German highlands could not afford to work their poor hill farms if they were unable to

Figure 84

Photo by Rupp, from German Railroads Information Office

find other work to do in winter. The widely distributed forests have furnished winter work for many German farmers, and have made possible the cultivation of much poor land from which alone farmers could not make a living.

Factories in farming districts. — Factories in some farming districts give winter work to farmers. Can you think of a crop raised on German farms which has to be used in factories near the farms where the crop is grown? There are many beet-sugar factories in the farming areas. Though most of these factories are in the midst of good farmlands, they may serve to provide additional work for farmers of poor lands near-by. Potato-drying plants and factories for making starch and alcohol from potatoes give seasonal employment to farm laborers. All these industries have helped to bring about the cultivation of poor land.

Much food on little land. — A smaller part of the land is used for pasture in Germany than in Britain or France. The Germans have found that much of their poor hill land yields larger returns in forest than in pasture. In spite of the smaller proportion of grassland, stock raising, as suggested by the figures on page 86, is very important throughout Germany. Many potatoes are used as feed for pigs, while the tops and the pulp of sugar beets are fed to cattle. Large crops of mangels and other roots and of clover are raised for stock food. By the use of such crops, more stock can be fed on each acre of ground than could be if the land were in grass. What do one of the tables on page 86 and Figures 20, 21, and 22 show you about the number of sheep in Germany, as compared with the number of cattle and of pigs? As compared with the number of sheep in France? How does the small amount of poor hill pasture in Germany help to explain this? Germany has no lands which are dry in summer. What part of France, then, is unlike any of the German lands? Does this also help you to explain why more cattle and fewer sheep are raised in Germany than in France?

How small farms help. — German farms resemble French farms in that a large fraction of them are small and are cultivated by the families that own them. How does this differ from the situation in Britain? Only in eastern Germany is much of the land in great estates, cultivated by tenants and hired laborers. Where each man owns only a small farm, he and his family in most cases put much work on each acre to make it produce large yields.

Rapid increase in production. — All these facts help to explain why Germany, in spite of much poor land, has become a very important agricultural country. Of course, it has taken a long time for the Germans to improve their poor lands and to learn how to use them best. Therefore Germany was late in becoming a great agricultural country. In a recent thirty-year period, however, the total yield of grain, potatoes, and sugar from German farms more than doubled, while the total number of horses, cattle, and pigs increased greatly. On the other hand, the numbers of sheep decreased as the amount of poor pasture was reduced.

Can you now see one reason why Berlin, which was long a small city in the heart of a poor plain, has grown more rapidly in recent years? You will find other reasons as you study further.

A Great Industrial and Commercial Country

A belt of cities. — On the map (Fig. 49), find how many cities of more than 100,000 population are located along the southern margin of the great plain near the edge of the highlands. How does this number compare with the number of cities of that size in all Germany? What have you learned about the kind of land in this "fringe" bordering the highlands? Its fertility helps to explain why there are many market towns there. Find in the following paragraphs other reasons for the many cities.

Early trading towns. — Some of the towns on the southern margin of the plain grew to

be important cities when much of the northern plain was still a waste of sand and marsh, and when Berlin was little more than a village. They were market cities for the exchange of products between the fertile valleys of the south and the towns of the Baltic coast. The prosperous farmers of the south raised plentiful grain in the valleys and pastured pigs in the hill forests, while skilled southern craftsmen made fine handwrought iron wares (p. 90). These iron products they traded for Baltic fish, for furs, and for woolens woven in the looms of Flanders (p. 71).

One of the greater of these trading towns on the highland margin was Leipzig (Fig. 49). Here was held regularly a great fur fair, to which northern traders brought many furs purchased from hunters and trappers who worked in the forests far to the north and east of Germany. Leipzig is still a great fur market. Other important market cities were Cologne, in the Rhine Funnel, and Breslau, in the Silesian Trough. They remain to-day among Germany's greater cities (Fig. 49).

The "Ruhr." — Fertile soil and early advantages for trade do not, however, explain all of the great cities along the highland margin. Where do you find the densest cluster of cities (Fig. 49)? What reason for this group of cities can you find from the map in Figure 66? The small river which flows through this densely settled area is the Ruhr (Fig. 49), and the coal field near it is called the Ruhr coal field. The Ruhr field produces more coal than any other coal field on the European mainland; on and near this coal field is the most important manufacturing district of the continent. Along the Ruhr stretches a belt of land, about ten miles wide and forty miles long, in which towns crowd so close together that they appear to be one continuous city. In much of the area fields and woodland have given place to "a sea of houses, a forest of factory chimneys, a spider-web of railroads," in many parts blackened with soot and often veiled in smoke. The clang of hammers in machine shops, the hiss of white-hot steel in the great rolling mills, the shrieking of factory whistles, the ceaseless whir of wheels, make the whole Ruhr seem one vast workshop.

Find Dortmund on the inset map in Figure 49. Dortmund is the chief iron-smelting center of the Ruhr. Iron ore mined in the highland south of the Ruhr and also much ore imported from other countries is smelted in and near this city. A waterway, part canal and part river (Fig. 49), connects Dortmund with the sea. Do you see why Dortmund is a good place for smelting imported iron ore, and for shipping heavy iron products?

Essen, which is farther west (inset, Fig. 49), is the largest city of the Ruhr. It contains the famous Krupp factories, the largest machine shops in the world. Figure 85 shows an airplane view of them. These mills make steel of several kinds and of many shapes, and forms for use in other factories; they also make of steel a great variety of machinery and tools. Steel rails, steel wheels, plates of steel for ships, steam engines, farm machinery, steel tires for wheels of railroad cars, and small tools of steel are among the varied products of this group of many mills. Thousands of workers are employed in the Krupp works alone.

At the western end of the Ruhr is Duisburg (inset, Fig. 49), a very busy river port. There are built most of the big barges and steam tugs which carry Ruhr coal up and down the Rhine, bring grain for the crowded cities of the Ruhr, and carry away some of the iron and steel wares manufactured in them. Hundreds of boats crowd the city's five miles of wharves.

Between these three cities are a dozen or more somewhat smaller, but no less busy, cities and towns, where coal mines, coke furnaces, iron and steel mills, and machine shops provide the chief work of the people.

Other industrial cities near the Rhine. — Not far from the Ruhr are various other manufacturing cities, all of which, like those

Figure 85 © *Underwood and Underwood*

of the Ruhr, may be thought of as parts of the great industrial district of the Rhine Funnel. South of the margin of the Ruhr coal field, but depending upon its coal, is a row of industrial towns which extends eastward from the Rhine in and near a narrow valley cut deep in the highland. Düsseldorf (inset, Fig. 49) is the Rhine port which serves these towns. Among the factories of this group of cities are many cotton, woolen, and silk mills, great chemical factories which manufacture dyes for coloring cloth, and plants famous for the making of cutlery.

Industries using Ruhr coal have also spread across the Rhine beyond the western edge of the coal field. In this group of towns iron and steel and cotton, linen, and woolen textiles are all manufactured, but this part of the Rhine district is best known for its large silk industry. Still farther west, important steel and woolen industries have developed on a group of small coal fields which lie at the foot of the highland west of the Rhine, just as the Ruhr field borders the highland east of the river (Figs. 49 and 66).

The heart of the Rhine Funnel. — Find Cologne on the map in Figure 49. It is at the place where any road following the northern margin of the highland west of the Rhine naturally crosses the river. This position has helped to make the city a railroad center as well as a great Rhine port. It is the chief commercial center for the busy industrial district on both sides of the Rhine.

Industrial districts of the other "fringe lands." — Just as vast modern industries have developed near the old trading center Cologne, so in the Saxony Triangle near Leipzig and in the Silesian Trough near Breslau there are great modern industrial districts. Find a reason for these from the map in Figure 66. In the Silesian Trough there are not only coal fields, but also deposits of iron ore, zinc, and lead. What manufactures, then, should you expect to find important there? Figure 86 shows a great factory for metal machinery in Breslau. The manufacture of wool obtained from local sheep was important in Silesia before the days of mining coal, and several Silesian cities are still important centers of the woolen industry.

In the Saxony Triangle are varied industries and dozens of industrial towns. What mineral besides coal is mined in large quantities in this district (p. 91)? Not only is potash used for fertilizer, but in chemical factories many other products useful for a great variety of purposes are made from potash. It is not surprising, then, that

By courtesy of the German Railroads Information Office

Figure 86

many large chemical factories are located at and near Stassfurt. By way of the Elbe waterway Saxony can easily obtain raw materials. This has helped the development of various industries, among which cotton manufacture is important. Figure 80 shows a great factory on the Elbe in one of the smaller towns of Saxony. The famous "Dresden china" comes from Saxony. So also do fine glass lenses for use in microscopes and telescopes. Leipzig, which as an important town in early days long ago became the seat of a great university, has a large book-binding industry.

Besides high-grade coal there are in Saxony large quantities of soft brown coal, or lignite. It serves as fuel in many beet-sugar factories and petroleum refineries, and is burned near the mines to develop electric power.

Rivals in iron and steel. — Of all the many kinds of work in Germany's chief industrial districts, the Rhine Funnel, the Saxony Triangle, and the Silesian Trough, those for which the country is most famous are the manufacture of iron and steel and the chemical industries. Before the World War Germany had outstripped all other European countries in the manufacture of iron and steel, and was surpassed in that industry only by the United States. The eastern part of the great iron-ore field of Lorraine then belonged to Germany, and this large supply of ore, together with rich coal resources, helped Germany to win its industrial importance. As a result of the war, Germany lost to France the iron ore of Lorraine and to Poland a part of the iron ore and coal of Silesia. Its iron industry has thus been reduced. It now mines only about one-fourth as much iron ore as France (p. 68). Germany, however, still has, as you saw in the Ruhr, a very important iron industry, using in part imported ore. Germany, France, and Britain are now close rivals in the manufacture of iron and steel.

Manufacturing colors. — Germany has many other chemical factories in addition to the plants near Stassfurt. One of the more important chemical industries is the manu-

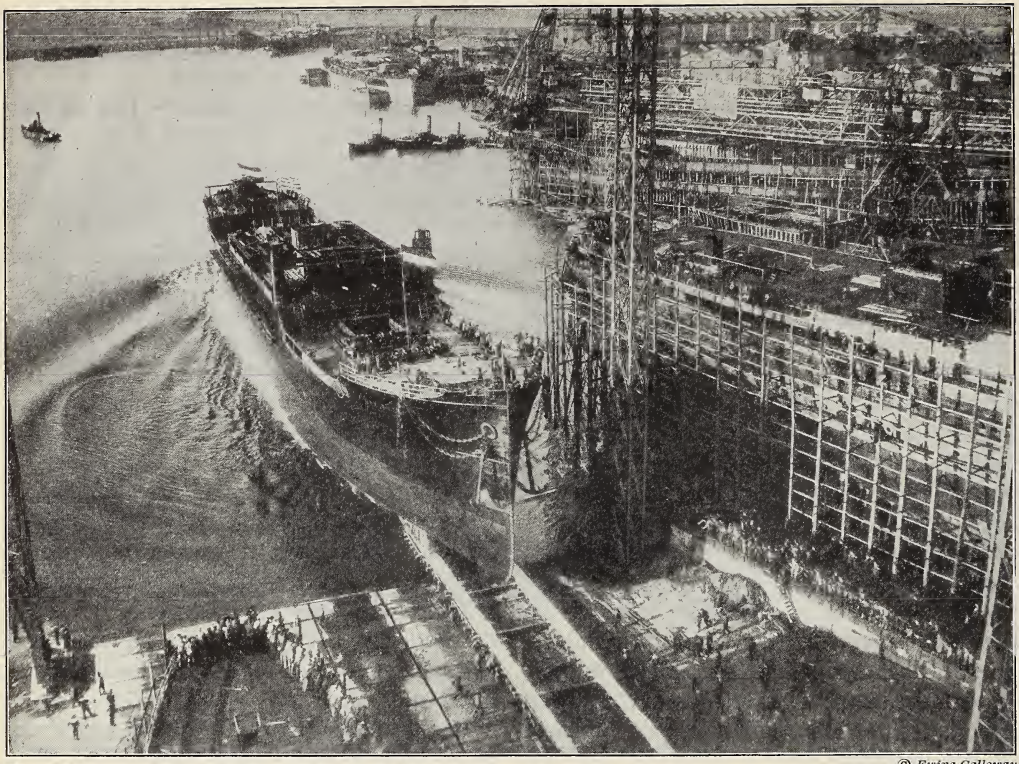
facture of dyes. In 1897, a German chemist discovered that artificial indigo could be made from coal tar. Before that time all indigo had been obtained from the indigo plant, which grows in certain tropical countries. The artificial indigo was so much cheaper than the natural indigo that Germany was soon exporting large quantities of it to other countries. The manufacture of other coal-tar dyes also became important. Germany used not only such coal tar as was produced in the country, but also large supplies imported from Britain. The large dye factories were located chiefly on the Rhine and one of its tributaries, and in Berlin — all places where heavy raw materials could be received by water. The industry grew to such importance that Germany supplied about four-fifths of all the dye stuffs of the world. When supplies from Germany were cut off during the World War, some of the chief importing countries learned to manufacture their own dye stuffs and the market for German dyes was thus reduced. The manufacture of nitrates has in part replaced the dye industry.

Questions. — What additional reasons can you now give for the many cities near the southern margin of the German plain? Do the German industrial districts resemble more closely those British coal areas which specialize in one type of manufacture, or the Glasgow district, which has varied manufactures? What important industry has Glasgow which has not developed on any of the German coal fields about which you have read? Why are ocean vessels not built on any of the German coal fields (Fig. 66)?

Building ships. — Germany has, however, a large shipbuilding industry at Bremen, Hamburg, and other seaports (Fig. 49). These shipyards must, of course, use coal transported to them by rail or water. Figure 87 shows a large shipyard at Bremen, near the mouth of the Weser, which is helping to rebuild the fleet which Germany lost as a result of the World War. Notice the large freight ship in the foreground, which is sliding down the ways. How many others can you count which are partly built?

Recent industrial growth. — Just as Germany was late in becoming a great agricultural country, so it was late in becoming very great industrially. In 1870, Germany was still chiefly a farming country. It manufactured less than a fourth as much iron as Britain, and had a merchant fleet of less than 80,000 tons. By the beginning of the World War, not more than a third of the people lived by farming, the country's iron industry surpassed Britain's, and the merchant fleet exceeded 3,000,000 tons. Do these facts suggest to you another reason for the recent growth of Germany's capital city? Remembering a reason for the varied industries of Glasgow, can you now suggest a reason which helps to explain the varied industries on German coal fields? Find in the following paragraphs reasons which help to explain the rapid recent growth of German industries.

How science helped. — Steel containing more than a very small amount of phosphorus is too brittle to be satisfactory for most purposes. The iron ores of Lorraine, which contain much phosphorus, could not be used for making steel until a means was found of making it in such a way as to remove the phosphorus. Such a method was not discovered until 1879. This discovery promoted the very rapid growth of the German iron and steel industry. The manufacture of iron and steel machinery, which is now so important in Germany, could hardly become important until Germany manufactured large amounts of iron and steel. The manufacture of machinery promoted the growth of other industries requiring machinery. As the story of indigo suggests, the chemical industry also had to await certain modern scientific discoveries. Discoveries made in the chemical industries, moreover, have improved production in various other industries, for exam-



© Ewing Galloway

Figure 87

ple in the manufacture of glass and of sugar.

All industries in Germany have been helped by the large number of technical schools founded in recent years which provide trained workers for industries.

Many states made one. — The southern portion of Germany is so divided by highlands and valleys into many small units that the land which is now Germany consisted for a long time of many small, separate states. It was not, indeed, until 1871 that all the states of Germany finally were united. After that time, the central government took various means to encourage the growth of industry as well as of agriculture throughout the country.

Money from France. — In 1871, Germany finished a successful war with France. As a result of this war, France paid a large amount of money to Germany. This money helped in the development of German industries.

Improving transportation. — German industries were greatly helped by modern improvements in transportation. Of course, this is true in *all* countries which have built railroads or improved their waterways, or both. However, not all countries needed modern transportation so much as Germany. In England, for example, the chief supplies of iron ore and coal were close together, and little transportation was needed. Also, certain coal fields were very near the coast, where they could serve for shipbuilding. As you have seen, German coal fields are not near the coast. Imported raw materials had to travel considerable distances to reach them. The iron ores of Lorraine and the best coking coal of the Ruhr are not very close together.

Figure 88

Photo by Hermann Jansen, from German Railroads Information Office

After Germany became a united country in 1871, the government devoted much work to binding together all parts of the country by an improved system of railroads, canals, and rivers. Germany had, to begin with, a useful system of natural waterways. Find on the map in Figure 49 three great rivers which provide waterways from the southern boundary to the northern boundary of Germany. Find a large river which furnishes an east-west route almost across southern Germany. The large tributaries of the Rhine also provide important routes in southern Germany. The usefulness of these waterways was greatly increased by deepening the streams in places where shallowness hindered navigation, and by installing wharves and equipment for handling freight. Germany now has one of the better systems of inland waterways in the world.

The Elbe is navigable for boats of at least 400 tons from its mouth to a point beyond the German boundary. The Oder is navigable for boats of similar size from its mouth almost to the southern boundary. Notice (Fig. 88) the width of the Rhine at Cologne. Sea-going ore boats come this far upstream. Barges of 2000 tons can reach Mannheim (Fig. 49). The river from Mannheim to the southern boundary can be navigated by barges of 1000 tons during a large part of the year. Find in the foreground of Figure 88 the long, low barge drawn by a small, white tug boat. Barges of this sort, carefully shaped to hold heavy loads without requiring great width or depth of water, carry most of the heavy freight which goes up and down the Rhine. Can you find more than one in the picture? Similar barges are used on the Elbe (Fig. 80).

What effect do you think the improvement of the Rhine and of Rhine navigation would have upon an industry using Ruhr coal and Lorraine iron ore? Does Germany produce most of the raw materials used in her textile industries? What effect do you think the improvement of Rhine navigation would have upon the textile industries of the Rhine

industrial district? Upon the growth of chemical industries? Explain why you think as you do. Just as the improved Rhine waterway has helped the development of industries near the Rhine, so improvements in the Elbe have helped what industrial district? Improvements in the Oder have helped what one?

There is no stream which provides a waterway from east to west across the whole of the northern plain of Germany. However, the streams on the plain are so arranged that it was possible to make a long, east-west waterway easily. Find the canal southeast of Berlin which connects the Spree with the Oder (Fig. 49). The canal from one of the tributaries of the Oder to the great bend of the Vistula. Notice that only these two short canals were needed to complete a water route from the mouth of the Elbe to and beyond the boundary of Poland. The necessary canal links were built many years ago. The rivers and canals have since been improved. How do you think improvements in this waterway probably affected the growth of industries in Berlin? Why?

No industry in Germany is more dependent upon good transportation than shipbuilding. After iron vessels came into general use, Germany built few ships until improved waterways and railroads made possible cheap rates from the coal and iron-ore fields (pp. 89, 94, 96, and 99) to the coast.

The growth of trade. — The recent growth of German industries would have been impossible without a great growth of German foreign commerce. German industries could not have become so great had Germany been unable to buy raw materials and sell manufactured goods abroad. On the other hand, of course, the growth of industries caused an increase in commerce. Before its industries became important, Germany did not need many raw materials from abroad or have many products to sell. Also, until the shipbuilding industry became important, Germany did not have a large fleet with which to carry on ocean commerce. Thus industries and commerce grew side by side. German foreign commerce in the years between 1870 and 1913 more than tripled in value.

A great seaport. — Of German seaports, no other grew to such importance as Hamburg (Fig. 49). The tonnage of boats entering and leaving the harbor of Hamburg is about the same as that at Liverpool, and some five times greater than that of Bremen, the second German port. What have you learned about the development of waterways in the North German plain which helps to explain why Hamburg is much more important than other German ports? Remember that Hamburg is at the end not only of a great east-west waterway, but also of a great north-south waterway. Find the docks on the map of Hamburg (Fig. 240). Are they along the seacoast or the river? The largest modern ocean liners cannot reach these docks, but stop at a smaller port on the open coast at the mouth of the river (Fig. 49), about fifty miles northwest of Hamburg. How does this recall the docking arrangements of London (p. 47)? Remembering that very large liners have been built only recently, state one reason for the growth of the great seaport at the inner, rather than at the outer, end of the Elbe estuary. Notice (Fig. 240) the railroads along the Hamburg docks. How do you think these have helped Hamburg to become a great city?

Facing the Baltic. — What bodies of water does the coast of Germany border? Do you think that ports on the Baltic Sea have as good a chance for ocean commerce as ports on the North Sea or on the open ocean? Why? Also the harbors of the Baltic were shallower than most of those of the ocean, and, in most cases, they needed dredging to make them deep enough for large boats. The water of the Baltic is more nearly fresh than that of the ocean, and ice is more likely to form in the harbors in winter. Eastern

Figure 89 *By courtesy of the German Railroads Information Office*

Baltic ports are troubled by ice more than western ones. Why (p. 86)? Do all these facts help to explain why Germany did not develop a great ocean commerce so early as Britain? What additional reasons can you now give for the importance of Hamburg, as compared with Germany's Baltic ports?

Find on the map in Figure 49 the Kiel Canal, which connects the North Sea with the Baltic. Figure 89 is a view of this broad waterway. This canal was completed in 1895. What effect do you think it may have had upon the commerce of Baltic ports?

"A world city." — As German agriculture, industry, and commerce have grown during the last fifty years, the population and the wealth of Germany have increased greatly. Germany now has a population twenty-three millions larger than that of France, in spite of its somewhat smaller size. The great increase in population and in the wealth of the whole nation promoted the rapid growth of the German capital city. Berlin's position on the great east-west waterway, connected with two great north-south waterways, was favorable for trade by water. Its position in the center of the great plain made it an easy crossing place for railroads. Trade by water and rail increased as the agriculture and industries of the great plain increased. The favorable position for trade in turn promoted industries. When the states of Germany were united in 1871, Berlin became the national capital. It had a more nearly central position, and one more easily reached from all parts of Germany, than any other large German city. Berlin thus became the residence of many officers of the German government. Its wealth, its industries, its schools, attracted many foreigners. The city on the Spree became at last what the Germans call a "Weldstadt" — a *world* city.

Summary Exercises

Berlin. — What reasons have you found for the lateness of the growth of Berlin into a great city? For the present importance of the city?

Adding a title. — You should now be able to give a name to the kind of ideas about Germany which are suggested in the following numbered paragraphs (pp. 50 and 78). Using this name as a heading, copy the paragraphs in your notebook, completing paragraphs 11–20 in the manner described on page 78.

1. The slow early development of agriculture in much of Germany ⟶ wide areas of sandy land and of wet land in northern Germany, and of highlands in the southern part.

2. The early importance of agriculture in valleys of southern Germany ⟶ fertile soil; warmer, sunnier summers than in the northern part of the country.

3. The use of a large amount of land for rye ⟶ many areas of sandy soil on the great plain and of poor, thin soil on the highlands.

4. Much land kept in forests ⟶ large areas of highland and of sandy lowland.

5. Much household industry in the southern highlands ⟶ poor farmlands, making it difficult to earn a living from farming alone; local supplies of wood, and of useful minerals.

6. Manufacture of textiles and of a variety of other products in the Rhine, Saxony, and Silesian industrial districts ⟶ coal near-by, good river and lowland routes to other parts of Germany and to the sea.

7. Importance of iron and steel industries in the Ruhr ⟶ large supplies of high-grade coal near-by, some iron ore in the neighboring highland, large supplies of iron ore in Lorraine, good river route connecting the district with Lorraine and with the sea.

8. Lateness of importance of German iron and steel industry ⟶ large amount of phosphorus in chief iron ores, distance between chief iron ore and coal resources.

9. Variety of manufactures in Berlin ⟶ cen-

Figure 90 *By courtesy of the German Railroads Information Office*

tral position on great plain, central position with reference to rivers, surface of plain favoring land transportation.

10. Lateness of development in Germany of the building of steel ships ⟶ iron and coal fields not near the sea.

11. The importance of potatoes among Germany's crops ⟶

12. The raising of wheat and sugar beets in parts of the German plain ⟶

13. Vineyards in parts of southern Germany ⟶

14. The raising of wheat in parts of southern Germany ⟶

15. Relatively few sheep in Germany ⟶

16. Early importance of work in iron in southern Germany ⟶

17. Dense population in some highlands ⟶

18. Chemical plants at and near Stassfurt ⟶

19. Chemical industries near the Rhine ⟶

20. Metal industries in Silesia ⟶

Comparisons. — Have you found any ways in which Germany is much like Britain? If so, what are they? Any ways in which it differs from Britain? If so, what are they? Have you found any ways in which Germany is much like France? If so, what are they? Any ways in which it differs from France? If so, what are they?

Things to explain. — 1. Cotton, wool, and wheat are among Germany's important imports. Among its important exports are iron and steel, machinery, manufactured textiles, coal-tar dyes, toys, and potash salts. What facts have you learned about Germany which help you to explain these imports and exports?

2. Figure 90 shows a farmhouse in the Black Forest. Of what is the house built? Why? Where do you think the straw used for the roof was obtained? What reason can you give for building the roof so steep? The whole of the top story of the house is used for storing grain and hay, while part of the first floor is given over to stalls for the farm animals. The family lives in the end of the house nearest you in the picture. Above their first floor living room there are some sleeping rooms from which the upper windows open. What have you learned about winters in the Black Forest which explains why it is convenient to have living rooms, stalls, and storerooms all under one roof?

3. A German statesman once said, "France is the sunny veranda of Europe, the German plain a drafty corridor." Explain what you think was meant by this statement.

A wheat and rye graph. — Draw in your notebook four rectangles, each an inch wide and five inches *high*, to stand for grain bins. Draw a line across the first rectangle an eighth of an inch above the bottom of it, marking off a rectangle one inch wide and one-eighth inch high. Let this small rectangle stand for the part of the bin that would be filled by 200,000 tons of grain. Draw another line one-eighth inch above the first one, to show how much of the bin would be filled by 400,000 tons. Proceeding in this way, divide each of the four large rectangles into forty small ones. Do you see that the wheat produced in France (p. 86), if put into the first "bin," would fill thirty-seven and a half small rectangles? Color the part of the bin that would be filled. Using the other three "bins," show in a similar way the amount of wheat produced in Germany, and the amounts of rye produced in France and Germany. Label your graph clearly. Beneath it write a paragraph explaining, in so far as you can, what your graph shows.

"Pointers." — Draw on the blackboard a large outline map of Germany. Put "1" on the map to show the location of Lüneburg Heath, "2" in East Prussia, and other numbers to show the location of the lowlands near Berlin, the Ruhr district, the Saxony manufacturing district, the Silesian district, the Black Forest, Hamburg, and Bremen.

The person chosen to be "pointer" first points to one of the numbers on the map, and calls the name of some pupil. If that pupil can state a fact which is true about that part of Germany, he becomes the "pointer," points to another number, and calls upon another pupil. If the pupil first called upon cannot answer correctly, the first "pointer" calls on others till he finds one who can. No pupil may be called on a second time until every pupil has been called on once.

Figure 91

By courtesy of the Danish Legation, Washington

THREE SMALL COUNTRIES

Little space but many people. — Near the three great countries of Britain, France, and Germany, there are three small countries which, together, have an area less than one-fifth that of France. Find Denmark, Belgium, and the Netherlands on the map in Figure 8. These three countries are more important than you might expect them to be from their size. What does the map in Figure 6 show you about the density of population in them? Although their combined area is less than one-seventieth of the area of the United States without Alaska, they have about one-sixth as many people. The population of Belgium alone is almost as great as that of all Canada. Belgium, though the smallest of the three countries, has the largest population, while Denmark, the largest of them, has fewest people. From your further study, you will find other contrasts which will help you to explain this striking difference in density of population.

Differences in work. — What kinds of work do Figures 91, 92, and 93 show? The farm landscape is in Denmark; the factories are in Belgium; and the harbor is in the Netherlands. Farming, manufacturing, and commerce are important kinds of work in *each* of the three countries. However, Denmark has more farmers in proportion to its whole population than Belgium and the Netherlands have in proportion to theirs. Belgium leads the other two countries in the fraction of its people employed in manufacturing, and the Netherlands leads in the part of its population occupied with trade. The pictures in Figures 91, 92, and 93 should help you to remember these differences. As you study further, watch for facts which will help you to explain the importance of *farming* in *Denmark*, of *manufacturing* in *Belgium*, and of *commerce* in the *Netherlands*.

Figure 92

From Oroc

Figure 93

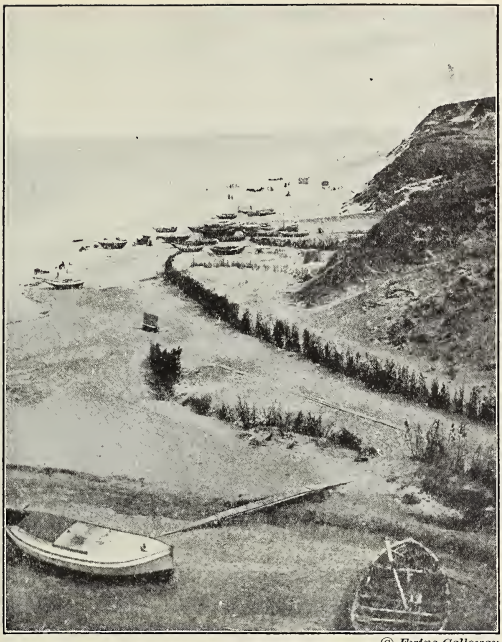


Figure 94 © Ewing Galloway

From Poverty to Prosperity

Poor farmlands. — Somewhat more than half a century ago, Denmark was a poor country. Then, as now, a large part of its people were farmers, but its farms did not pay well. Grains were the chief crops. What does the map in Figure 8 show about Denmark which might lead you to suspect that Danish lands are much like those of the plain of northern Germany? The western part of the peninsula of Denmark is a low, sandy plain, marshy in places. In it there are few hills except the dunes bordering the coast. The eastern part of the peninsula and the Danish islands near-by consist, for the most part, of rolling lands similar to those in the east-west belt of upland which extends almost across the German plain (p. 86). Though this part of Denmark contains many areas of fertile soil, much land here, as well as in western Denmark, was originally poor for farming. Moreover, after the settlement of the great, fertile plains of North America, vast amounts of grain were produced on them so cheaply that on most Danish farms it no longer paid to raise cereals.

Other handicaps. — Has Denmark any coal-producing area to supply fuel for use in manufacturing (Fig. 66)? Find a reason why the country has little water power (Fig. 8). What seas do the coasts of Denmark border? By reason of shallow water and shifting sands, Denmark's dune-bordered coast on the North Sea (Fig. 94) has no good harbors. Ports on Baltic coasts, as you saw in your study of Germany, are not so well placed for world trade as are ports on coasts of the North Sea or the open ocean. The growth of manufacturing and of trade, then, as well as that of farming, was handicapped in Denmark.

A successful experiment. — In view of these handicaps, the prospects of Denmark seemed dark for a time. In an effort to use their lands profitably, Danish farmers began to experiment with stock farming when grain farming no longer paid them well. Today, Denmark is a land of prosperous farmers, and stock farming and dairy farming are its chief kinds of agricultural work. Together, the butter, bacon, and eggs which Denmark exports yearly to Britain are valued at about two hundred million dollars. The following paragraphs describe some of the methods by which Denmark has made its farming successful.

Co-operation. — Many farmers of Denmark have become prosperous partly because they have learned to work together. Most Danish farms contain less than one hundred fifty acres, and more than forty thousand of them are less than ten acres in size. The owners of the very small farms probably could not make a living from them, even with the most careful planning, had they not formed co-operative societies. A society made up of many owners of small farms can buy and sell goods in large quantities, and so on terms as good as those which the

Figure 95 © Ewing Galloway

owner of a very large farm can get. For this reason, there have been formed in Denmark hundreds of farmers' co-operative societies. All the members of a co-operative butter society, for example, sell their milk each day to the society factory. There the cream is made into butter. The skimmed milk is returned to the farmers, and most of it is fed to pigs. Any profits which the society makes from the sale of the butter are divided among the farmers who supplied the milk. Co-operative bacon factories, slaughter houses, and egg-export societies are run on similar plans.

Using science in farming. — The farmers of Denmark have learned, better than those of most other countries, how to farm scientifically. They use their land for crops which supply large amounts of food for stock. They fertilize and cultivate their land so carefully that large crops are obtained in spite of soil that originally was poor. Such improved machinery as that shown in Figure 91 and such modern, well-lighted dairy buildings as those in Figure 95 may be seen on many Danish farms. On some farms, cattle are fed entirely in the barns. On others, they are tethered to stakes when permitted to graze, so that no grass will be wasted. Rarely are they allowed to range at will in pastures. A careful record is kept of the amount of milk each cow gives and of the amount of food she eats. A cow which no longer yields enough milk to return a profit to her owner is fattened for market.

Farms that are much like factories. — In spite of the very intensive use of much of the land in Denmark, not enough food is produced there for all the live stock which the farmers raise. In one way, Denmark's stock farms and dairy farms are much like factories. The country imports large amounts of "raw materials" in the form of grain and fodder, "manufactures" these materials on the farms into meat, milk, and eggs, and exports these "finished products." The farm animals may be likened to factory "engines," with the aid of which the manufacture is accomplished. You may think of Denmark, then, not merely as an agricultural country, but as a "*milk and meat manufacturing country.*"

Farms, factories, and trade. — The growth of factory-like farm work in Denmark helped Danish manufacturing and trade to grow.

The farms, for example, supply raw materials for butter and bacon factories, and butter and bacon are important exports. Moreover, as the farmers prospered, many industries were developed within Denmark to supply some of the goods which a prosperous people demand. The importing of the fuel and of many of the raw materials for these industries increased Danish trade.

Copenhagen. — The one great city of Denmark is Copenhagen, the capital (Fig. 8). Most of the foreign trade of the country and most of its manufacturing are centered there. The population of the city is about one-sixth that of all Denmark.

The excellent harbor of Copenhagen is formed by the strait between the two islands on which the city is located. Find on the map in Figure 8 the strait which separates Sweden from the islands on which Copenhagen stands. Except for the Kiel Canal, the shortest route between the North Sea and most Baltic ports leads through this strait. Do you see, then, why Copenhagen is a convenient port of call for many vessels entering or leaving the Baltic? The harbor of Copenhagen is deeper than are most Baltic harbors. It is, therefore, convenient for large ocean vessels to unload at Copenhagen wares which are to be reshipped in smaller boats to other Baltic ports. To provide for the handling of goods on their way to and from other Baltic ports, Copenhagen has established a " free port " near the " city harbor " in the strait. At this free port, goods intended for reshipment may be unloaded and stored in warehouses without the payment of duty to Denmark. Rapid train-ferry service between the larger island on which most of Copenhagen stands and the Danish peninsula helps to make the city a convenient port for Denmark's own imports and exports.

Manufacturing, shop-keeping, and government work, as well as shipping, each employs many people in Copenhagen. The busy fish market suggests still another kind of work which supports some of the people of the city.

Copenhagen has many beautiful buildings, and is sometimes called the " City of Spires." Graceful spires, large size, and leadership in Baltic trade have helped to win for Copenhagen the proud title, " Queen of the Baltic."

A Very Densely Settled Country

Two parts of Belgium. — 1. Imagine a northeast-southwest line drawn across Belgium a short distance north of the city of Liège (Fig. 49). Northwest of this line, most of the people speak a language called Flemish which is similar to Dutch. Southeast of the line, most of the people speak a dialect of French which is called " Walloon." The name Flanders is applied to northwestern Belgium, while the southeastern part of the country is called Wallony. What difference between these two parts of Belgium can you find from the map in Figure 49?

2. After reading the following two paragraphs, decide which of them describes a landscape in Flanders, and which describes one in Wallony.

(1) " The horizon is broken only by rows of tall poplars along the straight roads and canals, or by houses and groups of trees among the well-tended fields. The plain is divided into many small, cultivated plots and is dotted thickly with farmhouses and villages. The whitewashed brick cottages, with their red-tiled roofs, stand out sharply against the green of fields and trees. From every hamlet rises a church spire, and at intervals tower the tall buildings of historic cities."

(2) " The fields lie in scattered patches on the plateau. The slopes of the deep, winding valleys are wooded, or are covered with heather and broom. The land seems poor, and is not settled densely. Here and there the slate-roofed, stone houses of a village show gray against the wooded hills."

3. Do you think that the picture in Figure 96 was taken in Flanders or in Wallony? Tell why you think as you do. Did not this picture and the description in the first of the paragraphs you have just read recall French Flanders to you (p. 63)? French Flanders and Belgian Flanders are much alike.

4. What differences between Flanders and Wallony have you now found? What reason can you suggest for the differences in the houses described in paragraphs (1) and (2)? Why should you expect upland Wallony to be settled less densely than the lowland of Flanders?

5. Not *all* parts of Wallony have a population less dense than that of Flanders. Indeed, the

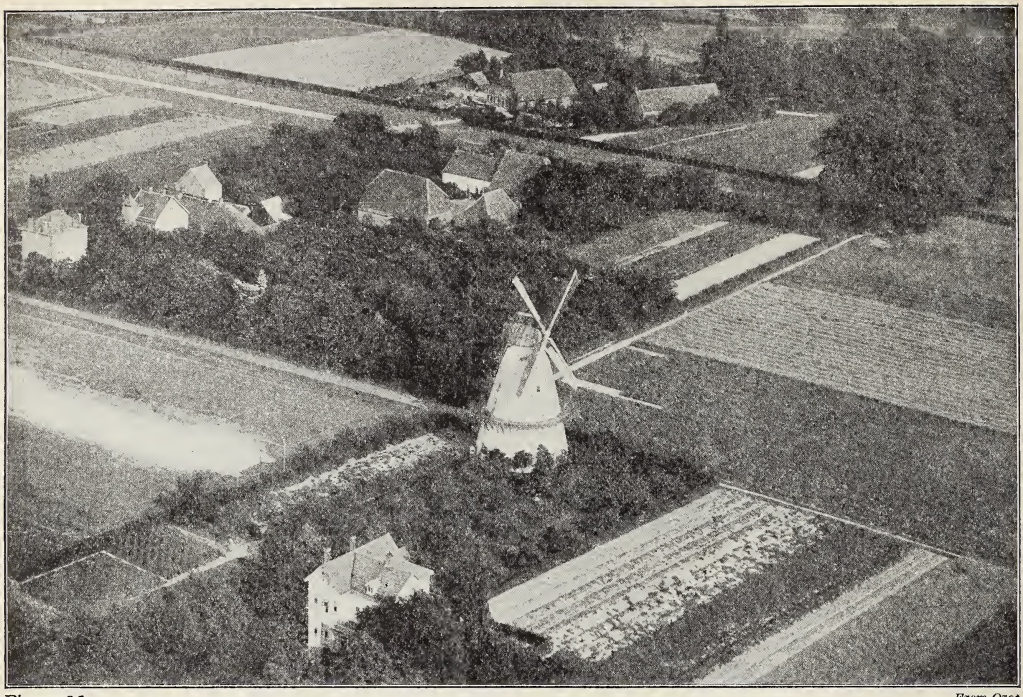


Figure 96 *From Oroc*

valleys near the northern edge of the upland are very densely peopled. What reason for this fact does the map in Figure 66 suggest? A coal field which probably is richer than that of Wallony has been discovered recently in the eastern part of Flanders. In time, therefore, mining may be important in Flanders as well as in Wallony.

6. From the following two descriptions, find a difference in the manufacturing work of these two parts of Belgium.

The "Black Country" of Belgium. — On and near the coal field along the edge of the highland of Wallony is the "Black Country" of Belgium. As in England's Black Country, iron and steel mills, such as those in Figure 92, are the chief manufacturing establishments. Little iron ore is mined in Belgium, but ore is obtained from near-by Luxemburg (Fig. 49), whose rich iron field adjoins that of northeastern France. Besides coal mines and steel mills, many chemical works, great glass factories, and smelters for treating zinc ore are among the many signs of work in the Black Country. Some zinc ore is mined near the eastern end of the district. The "Birmingham" of Belgium is the city of Liège.

The dead cities of Flanders. — In Flanders, the making of textiles is the most important manufacturing work. Flanders became, earlier than did any other part of Europe, a great industrial district, famous for the weaving of wool and of linen. At one time, both London and Paris were surpassed in size by the great Flemish textile city of Ghent (Fig. 49). Nearness to the sheep downs of England helped the woolen industry to grow (p. 71). A climate in Flanders favorable for raising flax and the suitability of the water of the Lys River (Fig. 49) for soaking flax fiber helped to make flax an important crop and the weaving of linen an important industry. Some towns in Flanders became famous not only for plain cloth but also for tapestries, carpets, fine damasks, laces, and embroideries.

The chief port which served the early tex-

Figure 97 © Brown Brothers

tile towns of Flanders was Bruges (Fig. 49). Though it is not on the coast, the vessels of early days could reach the city by way of a small stream, and the town was safer from pirates than a port on the coast would have been. After a time, however, the waterway became blocked by silt, vessels could no longer reach the city, and Bruges declined. Later, Antwerp (Fig. 49), near the mouth of a broad tidal river, became the greatest port of the world. Antwerp's prosperity, however, did not last long. In what country is the mouth of the river on which Antwerp stands (Fig. 49)? After the Dutch obtained the territory around the mouth of the Scheldt, they prevented ships from reaching Antwerp. Much of the trade of Flanders was destroyed. As a result, the Flemish textile towns declined also. A long period of wars and bad government made matters worse. Many skilled workers fled into other countries. The splendid old cities which had lost much of their former wealth and population came to be known as the " dead cities of Flanders."

Some of the " dead cities " have come to life again. The Netherlands no longer charges toll of vessels passing up the Scheldt to Antwerp, and that city has become once more a great seaport. Find on the map in Figure 49 the ship canals which have been built to connect the famous old cities of Bruges and Ghent with the sea. Belgian coal has helped in reviving textile industries in many Flemish cities. The weaving of cotton, however, has replaced the woolen industry in importance in Flanders.

One of the early textile industries which still is important in Belgium is the making of lace by hand. Thousands of Belgian women do this tedious work in their homes for only a few cents an hour.

The picture in Figure 97 was taken in flax fields near the Lys River. The linen industry is important in several towns in the Lys district, in part because of near-by flax fields and coal mines. Ghent is an important center for the weaving of both linen and cotton. With the aid of the map in Figure 49, what reasons can you give for this fact?

Handicaps in developing trade. — What did you learn from the story of Antwerp which helps to explain how the growth of Belgium's foreign trade has been hindered? In what country is the mouth of the Meuse River, which flows through the Black Country? Since the Belgians cannot improve the part of the Meuse which is in the Netherlands, this river is less useful to them than it otherwise would be. No large stream flows to the Belgian coast. Moreover, sand and silt, shifted by shore currents and winds, make it difficult to keep open any harbor along this coast. What reasons can you now give which help to explain why Belgium has few merchant ships, and why its maritime work is not of great importance?

Belgian farms. — In Flanders, there are thousands of farms much like the one described in the following paragraph.

The farmer owns four and one-third acres of land, and rents three thousand square yards more. His farm consists of four plots, short distances apart. He owns his house and stables. He has a few pigs and three cows. For most of the plowing he uses his cows, but for the hardest work he borrows horses from a neighbor who has a larger farm. He pays for the use of the horses by helping the neighbor at times with his work. The crops grown on this tiny farm are wheat, rye, oats, clover, potatoes, and beets.

© Ewing Galloway

Figure 98

In summer, the owner works from four o'clock in the morning until dusk; in winter, his work day is shorter.

Farms in Wallony are, as a rule, larger than those of Flanders. Even in Wallony, however, large farms are few. What reasons can you give why a farmer probably could make a better living from a small farm in the Belgian plain than from a farm of the same size in the upland? What differences between Flanders and Wallony have you now found?

Earning a living from small farms. — The average size of a farm in Belgium is between five and six acres, less than in any other country of Europe. Some people who farm very small patches of land also work part of the time in factories. Other families make their entire livings from surprisingly small farms. The size of these farms is the more remarkable in view of the fact that much of the soil of Belgium was originally poor.

As the description of the Flemish farm probably suggested to you, the rearing of livestock helps some Belgian farmers to make a living. However, the total number of cattle and pigs in Belgium is little more than half that in Denmark.

Many of the small farms of Belgium are used largely for growing vegetables, fruit, or flowers. Can you find in Figure 96 any plots which you think are used for orchards or vegetable gardens? An acre in these crops, if carefully cultivated, usually yields a larger return than an acre in grain. What have you learned about manufacturing in Belgium that helps one to understand the demand for "truck" crops? The market garden industry is helped by the excellent network of good railroads and canals in Flanders, and especially by the many miles of light railways extending along the country roads. These help the farmers to get their vegetables and fruits to market quickly. Figure 98 shows another way in which Belgian farmers often take products to market. Do you think this is a cheap means of transport, or a costly one? Why?

In a country in which there are a great number of small farms, each of which supports a family, the farming population is, of course, dense. Do you see that the agriculture, as well as the manufactures, of Belgium helped it to become the most densely settled country on the European mainland?

Brussels. — Antwerp is Belgium's greatest port, and Ghent and Liège are large industrial cities. Much larger than any of these, however, is the capital, Brussels (Fig. 49). Antwerp and Ghent are distinctly Flemish cities, while Liège belongs to Wallony. Brussels, near the border between Flanders and Wallony, can best serve as the capital city for all Belgium. You would find most of the signs in the streets of Brussels printed both in French, the language of the king's court, and in Flemish.

The choice of Brussels as the home of the king and the seat of government has helped to bring to it a large population. Its position near the center of Belgium has been a factor in making it a convenient meeting place for canals and railroads (Fig. 49), and these, in turn, have contributed greatly to its trade. Moreover, Brussels has the varied manufactures which belong to an important transportation center having a large population. One of the manufactures for which the city is particularly known is the making of lace.

Figure 99 © *Ewing Galloway*

In the picture in Figure 99, which shows a part of the great square of Brussels, may be seen some signs of the city's trade. In this square is held the daily market for flowers and vegetables. As early as three o'clock of a summer morning, rows of carts from the country are lined up in the streets leading to the Grande Place and women with baskets are waiting to take their places at the stalls and tables as soon as they are permitted to enter the square.

The beautiful old buildings which surround the square remind one of the past glories of the Flemish cities. On the left in Figure 99 is the city hall, one of the finer civic buildings of the world. The buildings on the other side of the square in the picture are handsome "Guild Halls," buildings which were erected by the craftsmen's "guilds," or unions, in the days when Belgian cities were famous throughout Europe for the skill of their weavers and other artisans.

Brussels is a center not only of trade, but also of fashion, of music, and of art. The beauty of Brussels, its fine shops, and the gay social life of the capital, often have led people to think of it as the "Belgian Paris."

The Netherlands

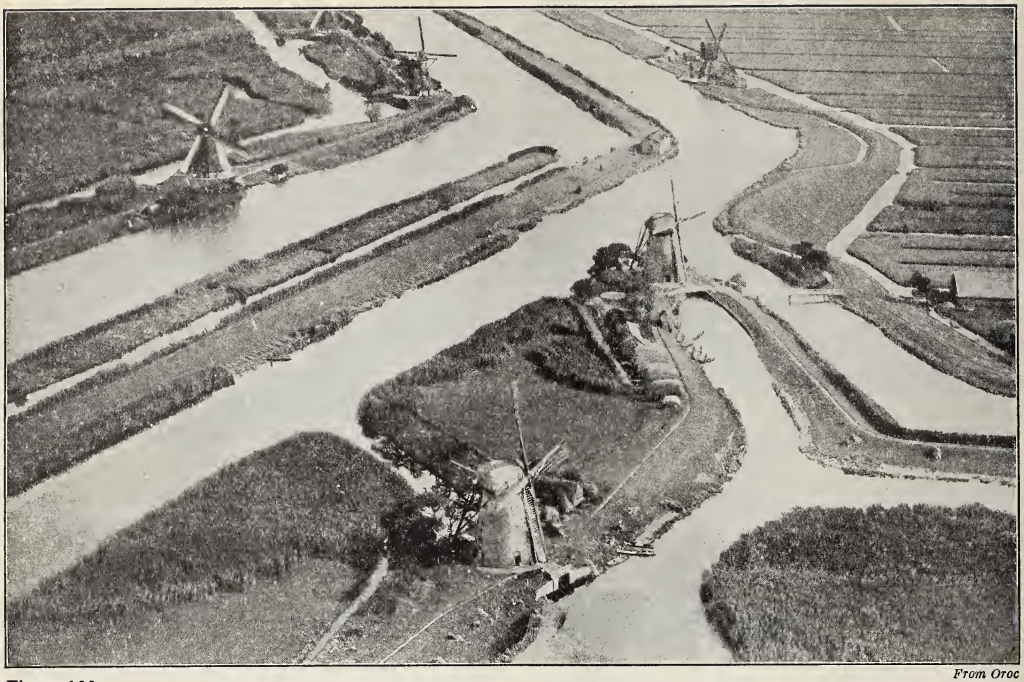
A commercial country. — After the commerce of Antwerp was ruined, the trade of ports in the Netherlands flourished. Ships manned by Dutch seamen ranged far and wide, and vessels flying the flag of the Netherlands became common sights in many a distant harbor. The Netherlands has continued to have a large commerce. Indeed, it now has a larger trade *in proportion to its population* than Germany and France have in proportion to theirs. Not only a large part of the commerce of the Netherlands, but also much trade between other countries, is handled by Dutch ships. In a recent year, the Netherlands owned 2,585,000 tons of merchant ships, while Belgium owned only 538,000 tons, and Denmark, 1,008,000 tons.

Some reasons for commercial importance. — 1. What facts can you find from the map in Figure 49 which help to explain why the Netherlands has more good harbors than Belgium has? Than Denmark has on its west coast?

2. Name a kind of work which has helped many people in Britain to become good seamen (p. 37). On which coast of Great Britain are the chief fishing towns? Why? Many people in the Netherlands, too, find fishing in the North Sea profitable. Do you not think that fisheries probably helped the Netherlands to become important as a commercial country, much as they helped Britain to do so?

3. Find Amsterdam and Rotterdam, the two chief seaports of the Netherlands, on the map in Figure 49. Of these two ports, one has a trade which consists chiefly in exporting products of the Netherlands and importing materials to be used in the country. The other has, in addition, a large *transit* trade, that is, a trade in goods passing through the Netherlands to and from other countries. Which of the two ports do you think has the better location for handling transit trade? Why? Goods can be sent up the Rhine from Rotterdam to any one of what countries by boat (Fig. 49)? Figure 93 shows a part of the harbor of Rotterdam. Can you find in the picture barges similar to those which you saw on the Rhine in Germany? Will these not help you to remember the transit trade of the Netherlands by way of the Rhine? Clearly, the fact that the *mouths of the Rhine* are in the Netherlands has helped to increase that country's commerce.

4. The farms and factories of the Netherlands also have helped its trade. For example, dairy products, pork, vegetables, and flower bulbs are farm products which are exported in large quantities.



From Oroc

Figure 100

On the other hand, large amounts of wheat and flour are imported. The use of much land for producing foodstuffs and other things for export, instead of for growing wheat needed at home, of course helps to swell the country's commerce. Do you wonder why the land is so used? The following paragraphs will give you some reasons. Find, also, how the factories of the Netherlands have helped its commerce.

Polder pastures. — From *Journeys in Distant Lands*, you learned some facts which should help you to explain the large export of dairy products from the Netherlands. What does Figure 100 recall to you about the height of a part of the land in the Netherlands? Check your answer by the map in Figure 49. For what are the windmills, ditches, and canals in Figure 100 used? Low, moist polders, such as those shown in this picture, are well suited for grass, but are not good grain lands.

Rye lands. — As the map in Figure 49 shows, the eastern part of the Netherlands is higher than the low polders in the western part. Most of the lands of the east, therefore, are drier than the polders, but many of them are also less fertile. Much of the soil is sandy. Why are these lands better suited for rye than for wheat? The rye crop is used in large part for feeding pigs. Which export do these facts help you to explain?

Farming under glass. — In Figure 101 you see, not roofs of factories, as you might well think, but, instead, acres of glass under which vegetables and fruits are being raised for early marketing. From your study of Belgium you learned that vegetables are in what way a suitable crop for a densely peopled country (p. 110)? From an acre of land roofed with glass so that vegetables can be produced "out of season," a still larger profit commonly is obtained than from a vegetable garden of the same size in the open. Do these facts help you to understand why, both out of doors and in such hothouses as those in Figure 101, many

Figure 101 *From Oroc*

vegetables are raised in the Netherlands?

Flower farming. — Many of the small plots which you see in Figure 102 are white with blooming hyacinths. Other patches are covered with deep purple hyacinths, or are gay with many-colored tulips. From many acres of flower fields such as these, great quantities of bulbs are obtained for export. The early trade of the Netherlands helps to explain why many flower bulbs are raised there. More than three hundred years ago, tulip and hyacinth bulbs were brought to the Netherlands from southeastern Asia, and sold at enormous prices. After a time, it was found that the production of tulip and hyacinth bulbs in the Netherlands could be made a sound business. The belt of sandy soil just behind the coastal dunes is well suited for raising bulbs. Three centuries of practice have helped to make Dutch bulb gardeners very skillful. The growing of bulbs, like vegetable gardening, requires much work on each bit of land, but it yields a very valuable crop.

Oil mills. — Like the bulb business, some of the factory industries of the Netherlands are explained in part by the early trade of the country. Long ago, Dutch ships began to bring home peanuts, coconuts, and other nuts and seeds which could be used for making oil. Windmills were used to turn grindstones which crushed the seeds and pressed oil from them. The remaining " oil cake " is excellent food for cattle. The need for cattle food in the Netherlands and the abundance of wind power helped this industry to grow. Many of the early windmills for pressing oil were in the district just west of Amsterdam. Some elderly people in this district still remember the terrific noise which the great mills made on a windy day. Now, much of the oil is manufactured in modern

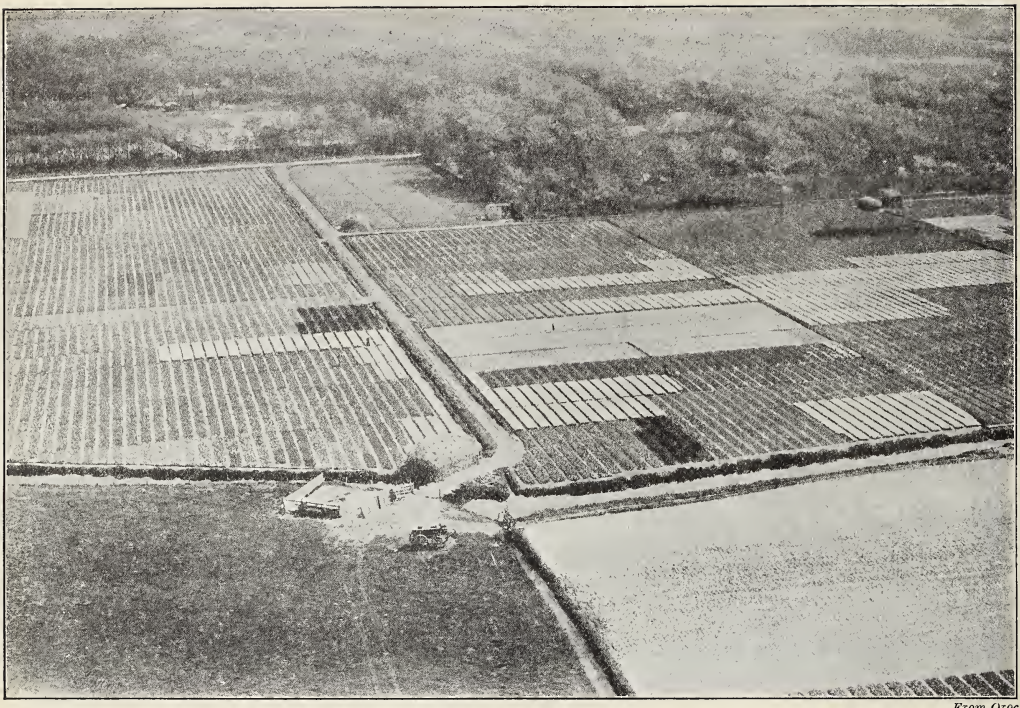


Figure 102 *From Oroc*

steam mills. Do you see why it is convenient to have the mills near a seaport? This industry supplies important quantities of vegetable oil for export.

Refining sugar. — The refining of sugar in the Netherlands became important when Dutch ships began to return with large quantities of raw cane sugar from the island of Java (Fig. 147). Java was one of the colonies of the Netherlands, and naturally shipped raw sugar to that country rather than to other countries of Europe. Later, some of the farmlands of the Netherlands were used for growing sugar beets. The refining of sugar is still an important industry there, and refined sugar is an important export.

Cotton manufacture. — The manufacture of cotton is still another industry which is dependent, in part, upon the trade of the Netherlands with its tropical colonies. The demand of the people in these colonies for cotton clothing has helped cotton manufacture in the mother country to grow, in spite of meagerness of coal deposits and the necessity of importing raw material. Recently, some coal has been mined from a small field in the southernmost part of the country (Fig. 66). However, the cotton industry became a considerable one in the Netherlands long before enough coal was mined there to be of importance. The fact that in early days many of the people of the Netherlands had acquired skill in the household weaving of home-grown flax and of wool was a helpful factor in launching the cotton industry.

Factories and trade. — These and other manufacturing industries increase the commerce of the Netherlands not only by supplying manufactured goods for export, but also by requiring many raw materials which must be imported. It should be remembered that overseas trade was one very important

reason for the growth of many of the country's manufactures, and that these manufactures have, in turn, increased the sea trade greatly.

Cities and trade. — Do you not see now that commerce has meant much to the people of the Netherlands? A fact which may help you to remember the importance of commerce in the Netherlands is that its greatest two cities are both seaports. In every other European country that you have studied, the capital is the largest city. In the Netherlands, such is not the case. The choice of The Hague (Fig. 49) as the seat of government has helped to give that city a large population. Though, as you doubtless noticed from the map, The Hague is very near the coast, it is not a seaport. The commercial life and much of the industrial activity of the Netherlands center, not in the capital, but in the old port of Amsterdam, on the Zuider Zee, and in Rotterdam, the great port near one of the mouths of the Rhine.

Summary Exercises

Explanations. — 1. What reasons can you now give for the importance of farming in Denmark? Of manufacturing in Belgium? Of commerce in the Netherlands?

2. What reasons have you found why Denmark is the least densely settled of the three countries, and Belgium most densely settled?

3. Write for your notebook a paragraph explaining how the farms of Denmark are more nearly like factories than are those of Belgium and the Netherlands.

Relationships. — Under the title "Denmark," copy in your notebook that one of the following groups of relationships which suggests Denmark to you. Copy under the title "The Netherlands," the group which suggests that country, and under "Belgium," the group which suggests it.

I. 1. Differences, in language, houses, size of farms, and manufacturing work, between the northwestern and southeastern parts of the country ⟶ highlands in the southeastern part, and lowlands in the northwestern part.

2. Great importance of manufacturing ⟶ rich coal deposits.

3. Early development of a great textile manufacturing industry ⟶ nearness to the downs of England, nearness to lands suitable for raising flax.

4. Small importance of maritime work ⟶ shifting sand and silt along a stretch of coast to which no large river flows.

II. 1. Development of an important port on offlying islands, instead of on the mainland ⟶ good harbor in strait between islands.

2. Importance of stock farming and dairy farming ⟶ climate and soils better suited for grass and other forage crops than for grains.

3. No ports on west coast ⟶ shallow waters off-shore, shifting sands along coast.

III. 1. Importance of maritime work ⟶ good river harbor near mouth of a great navigable river.

2. Use of much land for pastures ⟶ abundant rainfall; much low land, with rather heavy soil.

3. Use of lands for growing rye for feed and the raising of swine ⟶ tracts of sandy upland; much rainfall; cool, short summers.

Some "farm" relationships. — In explaining the uses of farmlands in Denmark, Belgium, and the Netherlands, many of the geographic relationships which can be seen are less direct than those which have been listed. For example, there is a relationship between dairy farming in Denmark and coal fields in Britain, but several items between these two need to be noted to make the relationship clear. It might be expressed as follows: Dairy farming in Denmark — need in Britain to import food — dense population in Britain — importance of manufacturing in Britain — mining of much coal in Britain ⟶ rich coal fields in Britain. Notice that all of the items preceding the arrow are human items. Each item followed by a dash is related to the next item. All are related in turn to the item following the arrow. Try to express, in a similar way, a relationship between truck farming in Belgium and Belgian coal deposits. Between the growing of bulbs in the Netherlands and the good harbors of that country.

Other facts to explain. — 1. How many cities of more than 100,000 people each are there in Belgium (Fig. 8)? In the Netherlands? In Denmark? What facts have you learned which help you to explain why the smaller two countries each have more cities of that size than the largest one has?

2. One kind of manufacturing for which Denmark is well known is the making of machinery for use in modern dairies. What have you learned about Denmark which helps to explain this fact?

3. "Tulips cut in the Netherlands in the morning are carried by airplane to Copenhagen, arriving there early on the same day." From what you have learned about the kinds of products which can stand high transportation charges, what reasons can you give for this fact?

Figure 103

© *Ewing Galloway*

SCANDINAVIA

Two lands of the North. — Do you recall that in *Journeys in Distant Lands* Norway was described as "a northland by the sea"? Notice that Norway occupies the western part of a large peninsula (Fig. 8). Forming the eastern part of the same long peninsula is another country which also might well be called a northland by the sea (Fig. 8). The picture in Figure 103 was taken in northern Sweden. What signs that Sweden is a "northland" can you find in this picture? The peninsula made up of these two "northlands" is known as Scandinavia.

A warmer West and a colder East. — Compare the latitude of Scandinavia with that of Alaska (Fig. 4). You may find it helpful to think of Scandinavia as the *Alaska* of Europe. The lowlands of Scandinavia, like the shores of southern Alaska, have less severe winters than do most other lands in the same latitudes. Indeed, most of the coast lands of Norway are even less cold in winter than are those of southern Alaska. What facts did you learn about winds and currents from your study of Britain which help to explain the mildness of winter temperatures on the Norwegian coast? The effect of the warm North Atlantic Drift, which sweeps northward along the coast of Norway, is well illustrated by the story of the first two flights to the North Pole.

Early in the spring of 1926, Commander Byrd, of the United States Navy, reached the pole by airplane. A few days later, the famous Norwegian explorer, Amundsen, sailed over it in the dirigible airship "Norge." Both of them flew to the pole from an island north of Norway. Since this island is in the path of the North Atlantic Drift, a broad lane of ice-free water extended northward to

Figure 104 *By courtesy of the American-Swedish News Exchange*

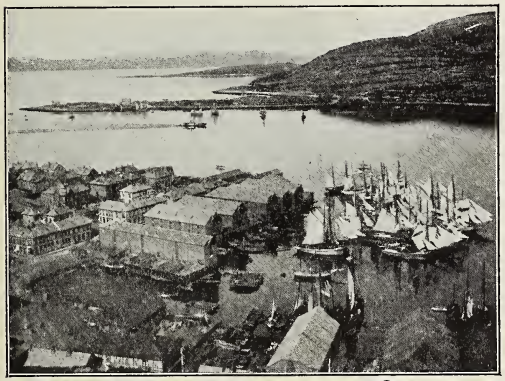


Figure 105 *© Ewing Galloway*

it at a season when other places equally near the pole were ice-bound. Both men chose a starting point on this island because it could be reached by ships bringing supplies.

The coast lands of Sweden are much colder in winter than are those of Norway. Why? The picture in Figure 104, taken on a bay near Stockholm (Fig. 8), shows one of the popular winter sports of Sweden. What does this picture suggest to you about the winter temperatures of the eastern Swedish coast?

The Gulf of Bothnia (Fig. 8) is frozen over every winter. Harbors on the northern half of the gulf normally are not free from ice before May. Along most of the eastern Swedish coast south of the Gulf of Bothnia ice interrupts navigation for a time in all winters except unusually mild ones. Stockholm's

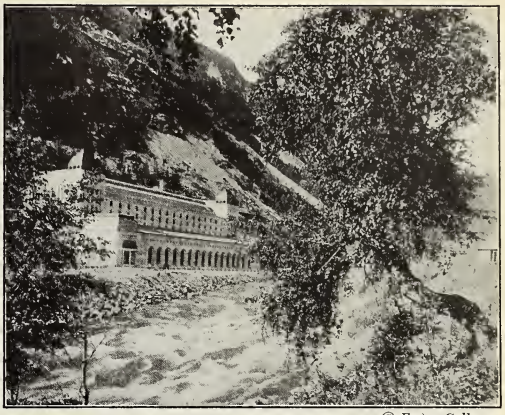


Figure 106 *© Ewing Galloway*

harbor and the harbors of several Swedish ports south of Stockholm are kept open by ice-breakers. Along the coast of Norway, except near the heads of some of the fiords which extend far into the land, ice very rarely forms. Even this coast, however, especially in the north during the dark winter, is often bleak and dreary.

A sparsely settled land. — What does the map in Figure 6 show you about the density of population in Scandinavia? Find from the map in Figure 8 a reason, besides its high latitude, which helps to explain why most of Scandinavia is sparsely peopled. Also find from this map a reason why the people of Scandinavia live to so large an extent near the coasts, and why there are more people near the Swedish coast than there are in the Norwegian coastal lands. Suggest two reasons why southern Sweden is settled more densely than most other parts of the peninsula. The total population of Sweden is more than twice that of Norway.

Ways of making a living. — In *Journeys in Distant Lands* various kinds of work are named which the people of Norway do. What kinds do Figures 105, 106, and 107 recall to you? Figure 108 suggests another kind of work there. The large building in the valley is a hotel. What reason can you see for placing a large hotel in this sparsely peopled mountain valley? What reasons can you give for the fact that many tourists visit Norway? What ways of making a living in Norway do you recall besides those suggested by these four pictures? Since Sweden, as well as Norway, is a mountainous, sea-bordered northland, you doubtless would expect

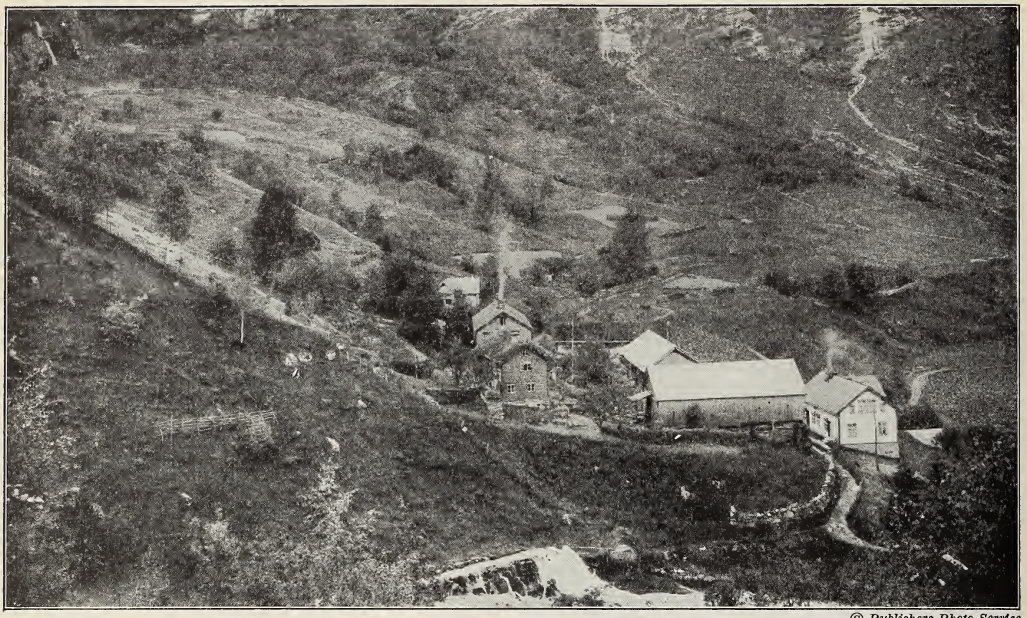


Figure 107

that Swedish people would do work of the same kinds as those important in Norway. This is the case. You will find, however, as you study further, that some kinds of work are much more important in Sweden than in Norway, while others are less important than in Norway. For example, after studying Norway and Sweden on the map in Figure 8, in which of the two countries do you think agriculture probably is more important? Why? List the following kinds of work in your notebook: (1) crop production; (2) dairying; (3) logging; (4) making lumber, wood pulp, paper, and matches; (5) converting water power into electricity; (6) fishing; (7) ocean carrying. As you study the pages which follow, write "Sweden" after each kind of work which is more important in Sweden than it is in Norway, and "Norway" after each kind which is more important there. Watch for any facts which help to explain differences in work between the two countries. Add to the list any additional kinds of work which you find mentioned.

The Swedish "southland." — The lowlands of southern Sweden recall Denmark. Among grain fields and rich meadows, there are scattered woods of oak and beech. Here and there, a windmill may be seen across nearly level fields. The land is dotted with red, wooden farmhouses similar to the one shown in Figure 109. The lowness of the land and a climate warmer than that of other parts of Sweden help to account for a fairly dense farming population in these southern plains.

From the sea to the mountains. — Upon a journey from east to west across Sweden north of these southern lowlands, you would see three distinct belts of country. Near the coast, your road would lead between low fields, meadows, and scattered evergreen woods.

The picture in Figure 110 is a view near the inner margin of the coastal belt. Find in the picture farmhouses similar to those of southern Sweden. In the background you see the edge of the second belt, which you would enter as you traveled farther inland. What differences between this second belt and the coastal belt does the picture suggest? Use the map in Figure 8 to check one of the ideas which the picture suggested. How does the average height of the land in this inner belt compare with that of the coastal

Figure 108 *From Oroc*

Figure 109 *By courtesy of the American Scandinavian Foundation*

lands? Forest similar to that on the hillside in Figure 110 covers most of this belt of higher land. What does the map in Figure 111 tell you about the trees in this forested belt? Spruces and pines are the chief trees in this coniferous forest. As you traveled through this wooded country, you would welcome the few fields, pastures, and hamlets, which, here and there, break the long, tiresome stretches of dark forest.

Continuing westward, you would come into a still higher land of mountains and of many lakes. Above the evergreen forests on the mountain sides, there are slopes clothed with birch trees, and above these, domes and peaks of bare rock. In other places, there are broad stretches of mountain moorland on which grow only mosses, lichens, clumps of low berry bushes and of dwarf birches, and a few flowering plants. Here and there among the mountains you might see pockets of fertile land in which there are fields and pastures. Except near the southern end of the upland, small snow fields and glaciers lie in the hollows of the higher mountains.

Placing pictures. — In which of the three belts do you think the picture shown in Figure 112 was taken? At what season? The picture in Figure 110 was taken in summer. In winter, deep snows often

Figure 110 *By courtesy of the American-Swedish News Exchange*

lie on the ground for many days even in the low coastal belt; in summer, snow lingers only in some of the high hollows and valleys of the western mountains. To which of the three belts do you think the area shown in Figure 103 belongs? This picture was taken farther north than that in Figure 112, in the same belt. How do the trees in the two pictures differ? The winters where the picture in Figure 103 was taken are so long and so cold that spruce and pine trees do not grow. Most of the trees there are dwarf birches.

Farmland and forest. — The map in Figure 8 suggests that the greater part of Norway resembles which one of the three belts described above? A journey from the sea eastward across Norway, then, would differ how from a journey across Sweden? Because there is much less room in Norway than there is in Sweden between the high mountains and the sea, Norway's forests and farmlands are much less extensive than those of Sweden. *Sweden has at least three times as much forest and five times as much cultivated land as Norway has. Even in Sweden, however, only about one-tenth of the land is farmed.*

Crop lands. — See Figures 27, 28, 29, 31, and 64, to find for what crops many of the fields in Sweden are used. Find also how the importance of each of these crops in Sweden compares with its importance in Norway. Is it not clear that Sweden is more important than Norway as a crop-producing country? The raising of wheat in Sweden is confined to what part of the country? Why? The chief grain grown in the northern part of Sweden is barley, the kind which is most likely to ripen there before the early autumn frosts. What do you know about the length of summer days north of the Arctic Circle, which helps to explain how barley can ripen there during the very short summer season? Are oats a more important crop in Sweden than wheat, or a less important one (Figs. 27 and 28)? More important than rye, or less important (Figs. 28 and 29)? How does the amount of rainfall in most of Sweden compare with that in Norway (Figs. 24 and 25)? In western Britain? How do winds and mountains help to explain these differences? Oats can stand more moisture than most other grain crops; also, oats can ripen in summers which are short and fairly cool. Which of these two facts do you think helps to explain the importance of oats in Sweden? In early summer, crops and pastures suffer in much of Sweden from lack of rain. In the later summer, rain is fairly abundant. Did you notice that meadows or pastures were mentioned in the word-picture of southern

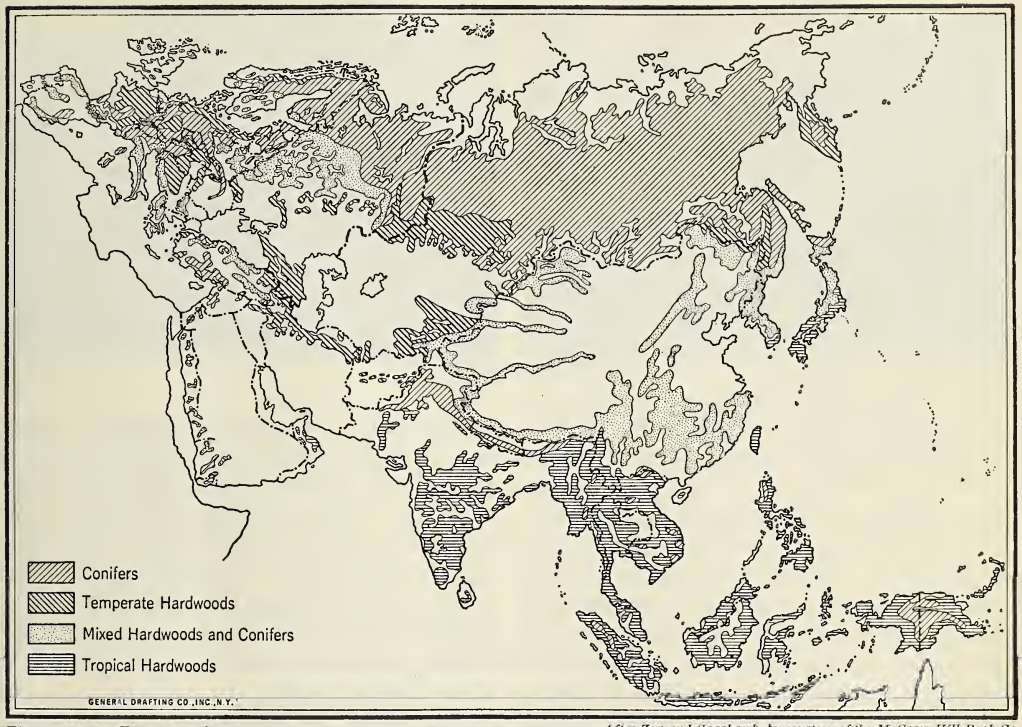


Figure 111. Forest regions

After Zon and Sparhawk, by courtesy of the McGraw-Hill Book Co.

Figure 112

By courtesy of the American-Swedish News Exchange

Sweden and of each of the three belts described above? Hay is an important crop in Sweden. Much land, moreover, is used for other forage crops and for root crops which can mature in spite of the shortness of Sweden's summers.

Dairy farms and upland pastures. — As the importance of oats, of forage crops, and of root crops suggests, Sweden, like several other countries of northwestern Europe, is more important as a dairy-farming and stock-raising country than as a producer of grain. Scenes similar to that in Figure 113 are evening sights on many Swedish farms. In Sweden, as in Norway, mountain pastures are used in summer for many cattle. In southern Sweden, however, most of the cattle are kept throughout the year on farms, as are all cattle in Denmark. More food for stock can be raised on an acre of lowland than is produced on a highland pasture of the same area. In proportion to area, Sweden has fewer dairy cattle than Denmark, all of which is lowland. On the other hand, Sweden has more than twice as many dairy cattle as there are in Norway, though Norway's area is almost three-fourths that of Sweden. Dairy work is more important in Sweden than it is in Norway.

From Oroc

Figure 113

From Oroc

Figure 114

One animal industry which Sweden shares with Norway and other lands of the Far North is the herding of reindeer. In winter, thousands of them find a living in the forests of northern Sweden. In summer, many move to the moorlands of the higher Swedish mountains, and often into the highlands of Norway. Most of the reindeer belong to Lapps who live in northern Sweden or in northern Norway (*Journeys in Distant Lands*, pp. 119–120). How is the Laplander shown in Figure 103 using his reindeer? Figure 114, which shows the "storehouse" of a Lapp family in Sweden, suggests another use. The larger pieces of meat hanging on the frame are reindeer meat.

The wealth of Sweden: its forests. — Farming in Sweden employs more people than are engaged in any other industry. Nevertheless, the greater part of the farm produce of Sweden is used at home. The forests, on the other hand, supply large quantities of materials for export. Much of the wealth of Sweden is in its forests. In recent years, wood and manufactured goods made wholly or chiefly from forest products have made up more than half of all Swedish exports.

"Sledding" timber. — Logging in Swedish forests usually begins in October or November, and continues through the winter. Snow makes the hauling of logs less difficult in winter than it would be in summer. When it will freeze quickly, water sometimes is poured on the forest roads to make a smooth ice cover. On a smooth, ice-covered road, a single horse may be able to draw a sled load of as many as ten or twelve eighteen-foot logs. In the forests of the Far North, reindeer are used for hauling some of the timber. Does not the work of logging in these forests remind you of similar work in the forests of Minnesota and Michigan (*United States and Canada*, pp. 106–107)?

Floating. — Some wood is used in the forests for making charcoal, tar, and pitch. Most of the logs, however, are sent to sawmills, many of which are far from the logging areas. Figure 115 shows the way in which most logs cut in Swedish forests are carried to the mills. Sweden has many streams which flow eastward from the forested areas to the sea (Fig. 8); indeed, few parts of the forests are far from a river. Many streams in Sweden have been made into "floating ways." This means that various improvements have been made to protect the banks of the streams and to help insure a ready passage to floating logs. The work of guiding logs downstream (Fig. 115) begins as soon as the ice on the streams thaws in the spring. The same kinds of forest work that are done in Sweden may be seen also in Norway, but they are less important there

Figure 115 *From Oroc*

because Norway's forested area is much smaller than that of Sweden.

Sawmills by the sea. — Most of the larger sawmills of Sweden are near the eastern coast. The central part of this coast is nearer to the chief forest areas than is the southern portion, and nearer the lands where the sawn timber is used than is the northern part of the coast. The central coastal district therefore leads in the production and export of sawn timber. Another district important for its sawmills is that northwest of Lake Wener (Fig. 8). Why is this a good place for sawmills (Fig. 8)? Find a water route connecting this district with Göteborg (Fig. 8). Göteborg, the chief port of Sweden on the west coast, exports large quantities of lumber.

Grinding wood and making paper. — In recent years, the value of the wood pulp exported from Sweden has been even greater than that of the sawn timber. Wood pulp is made by grinding wood to pulp, or by reducing it to that state by chemical means. As you might expect, the chief centers of wood pulp manufacture are the same as the chief sawmill districts. Though much wood pulp is exported, a large amount is used at home for the manufacture of paper, which is another of Sweden's very important exports.

Other ways of using wood. — Sweden manufactures and exports many matches. State one advantage which it has for this industry. The match factories are chiefly in southern Sweden. What reason does the map in Figure 6 suggest to you for the location of factories there? There are also many establishments in Sweden in which wood is used to make window frames, doors, common furniture, and the like. In certain factories, all the parts for building wooden houses are made and partially fitted together. Some of these "ready made" houses are exported. Though wood products, including sawn timber, wood pulp, paper, and matches, are also important exports from Norway, they are not produced there in such large amounts as in Sweden, nor exported in such large quantities.

Mining in the land of winter night. — One product which is a very important item in Sweden's trade comes from the barren northland of which a part is shown in Figure 103. The upland of Sweden, north of the Arctic Circle, contains hundreds of millions of tons of rich iron ore. Within this bleak plateau, over which Lapps wander with their reindeer herds, there have grown up in recent years prosperous mining towns. Find on the map in Figure 8 the railroad through Kiruna, a town in one of the Lapland iron fields. This road is one of the northernmost two railroads in the world. Over it the fast Lapland Express from Stockholm hurries passengers, while trains like that in Figure 116 carry thousands of tons of ore daily. In Figure 117 you see iron ore being scooped from a hillside to be loaded on freight cars near Kiruna. In 1885, there was not a house in the Kiruna district. Now the town has ten thousand inhabitants. Near Kiruna are two mountains which are estimated to contain seven hundred fifty million tons of valuable ore, and possibly much more.

The long, intensely cold winters and the many days of darkness make mining in Lapland difficult. For about a month in Kiruna, the sun does not appear at all. For a time

Figure 116 *By courtesy of the American-Swedish News Exchange*

Figure 117 *By courtesy of the American-Swedish News Exchange*

before and after this long night the daily periods of light are short. The mountain from which ore is being mined is lighted with electricity to make work possible during the darkness of the winter night. South of Kiruna, at a great fall on the Lulea River (Fig. 8), a huge power plant has been built which supplies electricity for the mining towns of Lapland and power for the railroad which runs through Kiruna (Fig. 8). As a protection against cold, the machine room of this plant was made one hundred sixty-five feet below the surface of the ground.

Iron mines and iron mills of the South. — Though most of the ore of Lapland is exported, Sweden itself is important as an iron-manufacturing country. Find on the map in Figure 8 the broad lowland which extends across the Swedish peninsula from Stockholm to Göteborg. In and near this lowland there are small deposits of iron ore which is practically free from phosphorus. The mining and smelting of iron ore in this district became important several centuries ago. Most of the Lapland ore, though valuable because it is very rich in iron, contains much phosphorus. It has been mined on a large scale only during the last forty years. Most of Sweden's smelting plants are near the iron-ore fields which were worked early. Since Sweden has very little coal and very great forests, many of its iron furnaces use charcoal for fuel. Charcoal is comparatively expensive, and so can be used profitably only for making a very high grade of iron. In the furnaces which burn charcoal, therefore, Sweden uses its best ores for making pig iron of high quality, much of which is exported. Most of the ore of less high quality is exported to industrial countries where coal is abundant and local supplies of iron ore insufficient to meet the demand. Sweden imports coal for the manufacture of some pig iron of cheaper grades for home use.

Within recent years, progress has been made in the smelting of iron ore and the making of steel by electricity. This method probably will prove to be of great importance to Sweden, since the country has very small supplies of coal and very large resources of water power, many of which are near its chief iron-ore deposits.

Light and power from waterfalls. — The maps in Figures 8, 24, and 25 should show you why Sweden has great power resources. Electricity developed from water power is much used in Sweden, as in Norway, for lighting, in operating trolleys, railroads, and telephones, and as power in sawmills, pulp mills, and other factories. There are in Sweden, however, splendid waterfalls which are still unused. Both in Sweden and in Norway, hydroelectric power is used for extracting nitrogen from the air for the making of

nitrates. Figure 106 shows a large nitrate plant at a power site on one of the swift-flowing streams of Norway. It is estimated that the farms on about two-fifths of the cultivated land of Sweden are now supplied with electricity. On many of them, electric power runs threshing machines, milking machinery, and machines for drying hay, for cutting straw, and for churning. Electric lights do much to make farm life pleasanter during the winter period of long nights. In a recent year, the total amount of hydroelectric power developed in Norway was slightly greater than that in use in Sweden.

Poor fishing in the Baltic Sea. — As you have read about farming, lumbering, mining, and manufacturing, has it occurred to you that the people of Sweden depend for their living more upon the *land* than the people of Norway do, and that perhaps they depend less than the Norwegians do upon the *sea?* Many of the people of Norway living on the scattered, narrow strips of land between the mountains and the fiords, can make their livings only from the sea. While the land affords greater resources of soil, forest, and minerals to Sweden than it does to Norway, the sea offers fewer advantages to Sweden. State one fact which helps to explain why the waters along the coast of Norway are more useful than those along much of the coast of Sweden (p. 117). Moreover, the waters of the Baltic Sea and the Gulf of Bothnia (Fig. 8) are less salty than are the waters of the North Sea or of the open ocean, and they contain few of the kinds of fish commonly used for food. The western coast of Sweden, near Göteborg, is much more important for its off-shore and high-sea fisheries than is any other part of Sweden. The rocky shores, the many islands, and the narrow, winding fiords along the coast north of Göteborg suggest the coast of Norway. Vessels from this part of the Swedish coast often go on fishing voyages into the waters north and northwest of Britain. The annual product of the fisheries of Norway is several times more valuable than that of the fisheries of Sweden. Sweden, indeed, ordinarily imports more fish than it exports. In the export trade of Norway, on the other hand, fish is one of the more valuable items.

Ocean carriers. — Sweden's merchant fleet is only about half the size of Norway's. Norwegian ships not only carry goods back and forth between Norway and other countries, but also transport much freight from one foreign country to another. For example, between sixty and seventy Norwegian steamers have been steadily engaged at times in carrying rice, coal, and other freight between China and India. Though Sweden does some ocean carrying, the total income from this source is much smaller than that from Norwegian shipping.

Chief seaports. — Though the people of Sweden depend more upon the land than the people of Norway do, the only large cities in Sweden, as in Norway, have grown up by the sea. Indeed, Stockholm, the capital city, seems to rise from the midst of the waters. To the west of the city spreads the broad surface of Lake Mälar (Fig. 8), to the east, the island-dotted waters of the Baltic, while the city itself is crossed and almost inclosed by arms of the lake and sea. From a high cliff in the southern part of Stockholm one may look down upon a broad expanse of fine buildings, of wooded parks, and of many quays, amidst a tangled network of blue waterways. In winter, the inner waterways usually are covered with glistening ice, sleigh bells ring through the streets, and the city is wrapped in snow. Summer or winter, ships lie at the wharves, for even in severe winter weather the harbor of Stockholm is kept open by ice-breakers (p. 117). Stockholm is the "London" of Sweden, its chief *importing port.* At the western end of the central lowland, the *exporting* port of Göteborg, facing toward the North Sea and the open Atlantic, is Sweden's "Liverpool." Göteborg, on the west coast

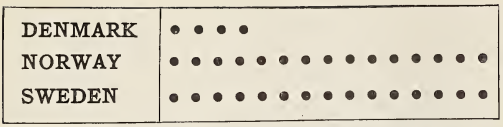


Figure 118. Numbers of sheep: each dot stands for 100,000

and important for its fishing as well as for its commerce, also recalls the Norwegian fishing port of Bergen (Fig. 8). Stockholm, like Oslo,[1] the Norwegian capital (Fig. 8), stands at the head of a bay on a sheltered eastern coast.

The two chief ports of Sweden naturally lie at the ends of its great central lowland. An all-water route — lakes, river, and canals — leads through this lowland. By way of this so-called Göta canal route (Fig. 8), boats travel from Göteborg to the Baltic, thence into Lake Mälar, and so to Stockholm. Into the broad lowland belt between the two cities are crowded a large part of the people, the farmlands, and the factories of Sweden, as well as some of its most charming scenery.

Summary Exercises

A check. — Did you write "Sweden" after items (1), (2), (3), and (4) in your list of kinds of work (p. 118), and Norway after items (5), (6), and (7)?

Relationships. — From the following relationships, select five which suggest Norway to you, and copy them in your notebook under the heading "Norway." Under "Sweden," copy the eight which suggest it. Four of the relationships will be included in both lists.

1. Much logging ⟶ many forests, streams on which logs can be transported.

2. Converting much water power into electricity ⟶ many streams which flow down steep slopes.

3. Mining very large amounts of iron ore and shipping much of it to other lands ⟶ rich iron ore deposits, scarcity of coal.

4. Outdoor work with the help of artificial light in an important iron-mining district ⟶ a "night" of about thirty days in midwinter, other winter days short.

5. Manufacturing lumber, paper, and matches ⟶ abundance of forests, streams which furnish water power.

6. Dairying ⟶ high mountain grasslands; farmlands suited for oats, root crops, and other food for stock.

7. A canal connecting two important cities ⟶ low, lake-dotted plain.

8. Very large amount of ocean carrying ⟶ many fiord harbors, ice free even in winter; scarcity of land suitable for farming.

9. Making high-grade iron and steel with the use of charcoal as fuel ⟶ iron ore without phosphorus, forests.

Facts to explain. — 1. In summer, Lapland iron ore is exported in large quantities from the Swedish port at the mouth of the Lulea River (Fig. 8). In winter, ore from this district is exported from the Norwegian port at the western end of the Lapland railroad (Fig. 8). What have you learned about the differences between the Swedish coast and the Norwegian coast which helps to explain this last fact?

2. In view of the fact that stock raising is less important in Sweden and Norway than it is in Denmark, how do you explain what the graph in Figure 118 shows (Fig. 8)?

3. The "invisible exports" of Norway are very large. What work which Norwegians do helps to account for this fact (p. 40)?

4. Northern Sweden, like northern Norway, is a "land of the midnight sun." What line on the map in Figure 8 shows that this is the case? Could you in clear weather on June 21 see the midnight sun if you were in Stockholm? Why, or why not? In Göteborg? Why, or why not? At the port at the mouth of the Lulea River? Why, or why not? At Kiruna? Why, or why not? At the port at the western end of the Lapland railroad? Why, or why not? At any place on the coast of Sweden? Why, or why not? Is the fraction of Sweden which lies north of the Arctic Circle as large as the fraction of Norway which lies north of the Arctic Circle, or not so large? Is Christmas day longer at Stockholm than it is at the northernmost point on the Swedish coast, or shorter? Why did you decide as you did? (*Journeys in Distant Lands*, pp. 111–112, 140.)

5. Oslo is in what part of Norway? Stockholm is in what part of Sweden? What have you learned about these countries which helps you to explain why each has chosen for its capital a place not near the center of the country?

[1] Formerly called Christiania.

Rank among European powers. — The bleakness of northern Scandinavia contrasts sharply with the warmth and sunshine of the peninsula which contains Spain and Portugal. How does this peninsula compare in latitude with France? Should you not expect temperatures there to be favorable for rich and varied agriculture? Is Spain one of the larger countries of Europe, or one of the smaller ones (Fig. 8)? Portugal? Of the European countries, only France and Russia exceed Spain in size, and France is but little larger. Spain ranks very high among the countries of Europe also in mineral resources. You might expect that these advantages would have helped this country to become one of the greater European powers. Nevertheless, Spain, in modern times, has taken far less part in world affairs than have some of Europe's smaller countries. Just as Spain ranks low in importance among the larger nations of Europe, so Portugal fails to take, among the lesser countries, a place as important as its size and location might lead one to expect. From the following pages find reasons which help to explain these facts.

Spain

A land of mineral wealth. — Near some of the ore deposits of Spain there are great stone monuments similar to ancient monuments in Brittany. Some of them are believed to have been built by people who came there for metals as many as five thousand years ago. Ever since, Spain has been an important source of ores. Its mines still furnish iron, copper, lead, and zinc in large quantities, and mercury and silver in smaller amounts. Spain leads the nations of Europe in its production of copper and lead. Germany mines more zinc than Spain, and several European countries have greater reserves of iron ore. Spain, however, has important quantities of so many of the chief metal ores that you may think of this country as the "metal mine" of Europe.

Probably the metal ores of Spain at once suggested to you *highlands*. Though it is by no means true that metals occur only in high lands, they are much more common there than in plains. Find from the map in Figure 8 about what fraction of Spain is more than 1000 feet above the sea. Most of the Spanish-Portuguese peninsula is a high plateau, but its edges look like mountains when seen from the bordering lowlands. In some places, mountains which rise above the surface of the plateau do form a rim to the highland. Near the edges of this great plateau occur most of the chief mineral deposits of Spain. The great copper resources are near the southwestern corner, and the chief lead deposits are near the southeastern edge. Zinc ores come from the lead districts of the southeast, and also from the northern mountainous rim. Iron ores have been mined chiefly in the northern edge of the plateau, but there are also large resources in the south and east. From the central part of the southern edge of the plateau more mercury has been obtained than from any other district in the world.

Two great handicaps to farming. — You can see at once that a country five-sixths of which are highland is handicapped as a farming country. Find from the maps in Figures 24 and 25 another reason why much land in Spain is poor for farming. Except for a small area in the high mountains of the southeast, what is the only part of Spain which has more than ten inches of rain in summer? In some parts of Spain, as in most Mediterranean lands, winter is the rainier season. Even in that season, however, much of Spain has little rainfall. What part of Spain which has less than ten inches of rainfall in summer has more than ten inches in winter? What part has less than ten inches in both seasons? Because much of Spain is *high* and because most of it is likewise *dry*, large areas there are not good for farming.

Glimpses of five parts of Spain. — There are several crops which the words "Mediterranean lands" should at once suggest to you. You found some of them near the Mediterranean shores of France (p. 58). They are important crops on the southeastern coast lands of Spain and in other Mediterranean lands described in *Journeys in Distant Lands*. Olive groves and vineyards, however, are not common sights in all sections of Spain, and only a small part of the country is a land of oranges. Spain is a country of many contrasts, and, to know Spain, one must know something of its differing parts.

1. There is the Spain of the northwestern coast, a land of hills and valleys, of woods, grain fields, and green pastures — a country of corn and rye and cattle. Where the little valleys between the ridges open out to sea, there are deep, narrow bays, and quaint fishing villages. The sardine fisheries are especially important. This part of Spain, with its ragged coast, its mild, moist climate, and its green slopes, reminds one in many ways of Brittany. Like Brittany, it is a land where old customs linger. Crude carts, creaking loudly as the heavy wheels turn, are drawn by plodding oxen over poor country roads. On some farms, land is plowed and grain is threshed by the primitive methods of two centuries ago.

2. Very different is the land of the high plateau. Here there are vast spaces almost without trees, in summer parched and yellow beneath a blistering sun and a cloudless sky, in winter cold and windswept. In many places where there is moisture enough, there are fields of winter wheat which ripens early in the dry summer. Here and there are vineyards, and in the southern part of the plateau there are many olive trees. Large areas, however, are used only for sheep and goat pastures, and some of the poorer lands lie waste. Grass is green for short periods after the brief spring and autumn rains. Soon it dries beneath the hot summer sun, or is killed by winter frost. Many sheep are driven in spring to pastures in the mountains above the plateau, and back to the lower lands for the winter. The person who has traveled in central Spain remembers dusty roads, muddy streams in deep gorges, flocks of sheep grazing in lonely pastures, and rocky hillsides rising above the general level of the dry, dun-colored plateau. The picture in Figure 119 suggests the drab and lonely character of much of the plateau, even though it was taken near a modern road.

3. The part of Spain which most people probably know best is the sunny land of the southwest — the valley of the Guadalquivir River, in which the city of Seville stands (Fig. 8). This favored lowland lies between the southern edge of the great plateau and the snowy mountains of the southern coast. Hot and dry during a few months of summer, but mild and fairly moist in other seasons, the climate there during much of the year is delightful. This is a land of golden oranges, of scarlet geraniums, of warmth, sunshine, and gay colors.

Centuries ago, much of Spain was conquered by Moors from Africa. Why was it possible for them to cross into Spain without great difficulty (Fig. 8)? These people later were driven from Spain, but in the southern part of the country there stand buildings which date from the period when the Moors ruled there and which suggest the architecture of northern Africa rather than that of western Europe. Some of the work of these Moorish builders is very beautiful. Patterns in tiles of many bright colors were much used by them for ornament. These bright colors seem to belong to this land of deep blue skies and brilliant sunshine.

Irrigated areas in the Guadalquivir Valley are very fruitful. There are orange groves, vineyards, and orchards of almonds and figs. Wheat and some other grains are raised. Much land is used for olives, which thrive without irrigation. The people themselves

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Figure 119

U. S. Dept. Agr.

Figure 120. Acreage of citrus fruits

seem to have caught much of the cheerfulness of this land of fruit and flowers. This rich lowland, however, is much less productive than it might be. Perhaps just because living there has not been hard, the people have not made the best use of much of their land. Many tracts lie unused and barren which could be made productive by watering and cultivating them.

4. The narrow eastern coastal plain near Valencia (Fig. 8), in contrast to much of the lowland of Seville, is cultivated intensively. Though this land has less rain than that around Seville (Figs. 24 and 25), a careful system of irrigation has made it the garden spot of all Spain. Do you remember the chief crop of this district (*Journeys in Distant Lands*, p. 72)? See the map in Figure 120 to be sure that you are right.

5. Find on the map in Figure 8 the valley of the Ebro River, which lies between the great plateau and the Pyrenees much as the Guadalquivir Valley does between the plateau and the Sierra Nevada. Nearly surrounded by highlands, the Ebro Valley is very dry (Figs. 24 and 25). Along the river, some land is irrigated. From the maps in Figures 21, 22, 27, 30, 62, 63, and 120, what facts can you find about the crops and stock raised in this district? What differences do you find from the maps between farming in this north-

Figure 121

eastern lowland and that in the coastal valleys of the northwest? Why are wheat and sheep more important in the Ebro Valley than corn and cattle?

Surface and climate again. — Do you see now that Spain contains several small, varied, more or less productive lowlands, which border the great highland core of the peninsula, large areas of which are rugged, dry, and infertile? The bordering lowlands make up only a small part of Spain. Wheat is the chief grain crop of the country (Fig. 27), but even so Spain produces only about half as much wheat as France, which, as you have seen, is only a little larger. The amount of wine commonly produced in Spain is less than half that made in France. Surface and climate have helped to prevent Spain from winning the great importance which France enjoys as an agricultural country. Nevertheless, Spain is chiefly agricultural; far more of its people live by farming than by any other work.

Forests and building materials. — In many countries in which there are large areas of highland, extensive forests give work to many people. Find of what materials the buildings in Figure 121 are made. Notice the roofs, as well as the walls. Throughout Spain, the houses, even in rural districts, are chiefly of these types. Does this suggest that lumber is abundant in Spain, or not? Spain once had large forests, but centuries ago most of the better timber there was cut, and many mountain slopes which might again produce valuable trees are covered only by worthless brush. The drier parts of the Spanish highlands have too little rainfall to support the growth of forests. Scarcity of rainfall also would make it difficult to start trees again in some places where they once grew. There are, however, large areas which have enough rainfall for good forests, and which are waste lands only through neglect. From the maps in Figures 24 and 25, decide which parts of the Spanish highlands would make the better forest areas. Since lumber was scarce, it became the practice long ago to use stone, brick, and tile for building materials. In spite of the general use of materials other than wood for building, the remaining forests in Spain cannot supply nearly enough timber for home needs, and large amounts of it are imported.

An important forest product. — There is, however, one forest product which Spain exports in large quantities. There grows widely in the southwestern part of the country a tree called the cork oak, which is well suited to scantiness of summer rain. The thick, tough bark of this tree supplies the cork of commerce. After the bark has been removed from a cork oak, a new layer of it grows. The bark can be stripped from a tree at intervals of eight or ten years through as many as one hundred fifty years. To prepare cork for use, it is heated, pressed into flat sheets, and the outer crust of bark removed by scraping. Many acres of cork oaks have been planted in southern Spain.

The backwardness of manufacturing. — You have seen how agriculture is handicapped in many parts of Spain, and that the country's forest resources are meager. Neither has Spain become very important as a manufacturing country. The manufactures which have been best developed there are the textile industries. Silks are woven from raw silk produced

near Valencia and in other districts along the southeastern coast. The beautiful silk shawls and silk laces worn by Spanish women are products of this industry, as were also the velvet jackets formerly worn by many of the men. The weaving of wool obtained from Spanish sheep also became a skilled industry in Spain at an early time. But in these days of modern factories, using steam-driven machinery, various other countries have far outstripped Spain in the quantity of textiles manufactured.

In spite of its great ore resources, Spain has not become a very important manufacturer of metals. Little Belgium, with very little iron ore of its own, makes, in most years, several times as much pig iron as does Spain. Spain's small industrial growth in modern times is due in part to a lack of coal resources of high quality. As you will see from the map in Figure 66, Spain has several producing coal fields; indeed, the value of the coal which is mined each year is greater than that of any other one mineral. Yet when you compare the five million to seven million tons which Spain produces yearly with the two hundred fifty million or more tons which Britain usually mines, you see that Spain is not very important as a coal-producing country. Unfortunately, Spanish coal is unsuitable for making coke. Since it is cheaper in most cases to carry iron ore to coal than to carry coal to ore, it is not surprising that much Spanish ore goes to feed the smelters of Great Britain and of Germany, and that a small part of the ore mined is smelted at home.

Another fact which helps to explain the backwardness of manufacturing in Spain is that transportation there is slow and expensive. Do you think, after studying Figure 8, that most of the rivers of Spain would be useful waterways for navigation, or not? Why? Do you think that it would be easy to build and operate railroads through Spain, or not? Why? As you doubtless realized, the steep edge and rugged surface in many places of the great plateau core of Spain helped to make transportation difficult and expensive. Extensive railroad building came later in Spain than in most of the countries of northwestern Europe, and even now Spain has only about five miles of railroad for each hundred square miles of land, while France has about twelve miles for each equal area. France also has thousands of miles of navigable rivers and canals.

Not only is transportation across Spain difficult, but land travel between Spain and the rest of Europe, save Portugal, is hindered by the great barrier of the Pyrenees. These mountains are more difficult to cross than the Alps. Passes over them are few and high. Only around the ends of the Pyrenees do railroads pass (Fig. 8).

Poor transportation makes it difficult for factories to obtain raw materials, and to market their products widely. Poorly developed transportation also means that most Spaniards travel little. Few of the people of the northwestern coast have seen Seville, and the planter of Valencia is likely to be a stranger in Madrid (Fig. 8). Modern customs and ideas, like the people, have been slow to travel. Naturally, then, Spaniards in rural districts have clung to simple ways of living, and to old-fashioned methods of work. This means, of course, that fewer manufactured products are used by them than by people who live less simply.

There are, however, places in Spain which hum with modern industry. One is the busy city of Barcelona, and the near-by coastal district; another is the north coast near the iron-ore shipping port of Bilbao. Find both of these cities on the map in Figure 8.

Barcelona. — The slopes of some of the coastal hills which separate the inner Ebro Valley from the sea have long been used for grazing sheep (Figs. 8 and 21). Weaving the wool of the sheep early became an important industry in the Barcelona district, which still leads in the manufacture of wool in Spain.

When cotton goods came into common use, however, the spinning and weaving of cotton became the leading manufacture of the district. The center of the textile industry is Barcelona itself, a modern commercial and industrial city, the second city of all Spain. The modern cotton factories which crowd its outskirts and the bustle of the well-equipped wharves which line its splendid harbor seem to belong to an industrial city of the North, rather than to Spain. Barcelona is the chief seaport of Spain, as well as a great textile city.

Bilbao. — The city of Bilbao, near the northern iron-ore fields, is the chief port of Spain for the shipment of iron ore. Ships which carry ore from Spain to Britain often bring back British coal. Spanish coal is mined near-by (Fig. 66). Thus, there have been founded in and near Bilbao iron smelters and steel mills. The beautiful, hill-rimmed valley in which the city lies is choked with ugly factories, and red scars on near-by hillsides show where iron ore has been taken from vast pits.

Changing Spain. — The bustle of modern trade and industry in these two manufacturing and commercial centers suggests changes which are taking place in various parts of Spain to-day. Factories are increasing greatly both in number and variety; farmers are using modern machinery and modern methods much more largely than heretofore; some new hydroelectric power plants have been completed recently, and others are in progress; some railroads are being built, and others are planned. In contrast, there are still in Spain many districts where life moves slowly, where one olive harvest follows another without too much effort and many a laborer finds time for a noonday siesta.

Madrid, capital and largest city. — As you have read about several parts of Spain which differ widely from one another and which are separated by the great plateau core, has it occurred to you that it might be difficult to bind the people of these parts together into one nation? Most Spanish people are very proud of belonging to the particular part of Spain in which they live; they have had too little contact with other parts to have so much feeling about Spain as a whole. It was because of this that the rulers of Spain were careful to place their capital city where they thought it would help most to hold all parts of Spain together. Does it not seem strange that a great city of more than 700,000 people should be twenty-four hundred feet above the sea, in the middle of a half barren plateau (Fig. 8)? It is true that before the days of railroads it was not easy to reach Madrid from any of the more productive lowland areas of Spain. But the difficulty of reaching it was much the same from all of them. This central location thus seemed the best one from which to govern all Spain. Later, railroads were built to connect the capital city with the borderlands, and Madrid became the center of the Spanish railroad system. The railroads have helped to make some industries profitable in Madrid, and have promoted the growth of the city.

Madrid forms an "island" of dense population in the heart of the sparsely peopled plateau (Fig. 6). One can see it from afar, a great, white city, in the midst of drab, semi-arid lands. At one side of the city is the royal palace, the large building in the background of Figure 122. The well-made buildings and busy streets of Madrid resemble those of other modern cities. Most cities of Spain have an open, central square, which the Spanish call a plaza. Trees are usually planted there, and in some cases a fountain stands in the center. The main streets of a city in most cases lead into its plaza, the center of traffic and a place where people congregate. In Madrid, there are several plazas. Some are inclosed by buildings, as is the one shown in Figure 122, and are not, of course, centers of traffic. The central plaza of Madrid is known as "The Gate of the Sun."

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Figure 122

Through it there pass each day great numbers of people and of vehicles — automobiles, donkey carts, clanging trolley cars, and loaded, ox-drawn wagons. In corners sheltered from the busy traffic, beggars doze in the sun. The varied stream of life which flows through Madrid's Gate of the Sun suggests the mixture of olden ways and twentieth century progress which makes up modern Spain.

Portugal

Likenesses and differences. — Portugal is one of the borderlands fringing the plateau core of Spain. It resembles, naturally, some of the Spanish borderlands. From its location, you would expect that northern Portugal would resemble most which of the Spanish "fringe lands"? Which part of Spain should you expect southern Portugal to be most like? Name two differences, then, which you should expect between the summers of northern and southern Portugal. See the map in Figure 24 to find whether you were right about the difference in rainfall.

Remembering that northern Portugal is a land of moist summers similar to northwestern Spain, and that southern Portugal is a land of drier and warmer summers, more nearly like the Guadalquivir Valley, what crops do you think would be important in northern Portugal? In southern Portugal? In both parts of the country? Check your answers by consulting Figures 27, 28, 29, 30, 62, and 63. Although Portugal is important as an olive-producing country, the facts about the distribution of its olive groves are not sufficiently known to make it possible to show them on a map. Olive trees occupy about 750,000 acres in Portugal, and are chiefly in the central and southern parts of the country. Notice how much of the land shown in Figure 123 is used for olive trees. Oranges, too, are raised in central and southern Portugal, though their distribution is not shown on the map in Figure 120. Figs, other fruits, and almonds are raised in Portugal in considerable quantities.

Does Portugal consist more largely of highland

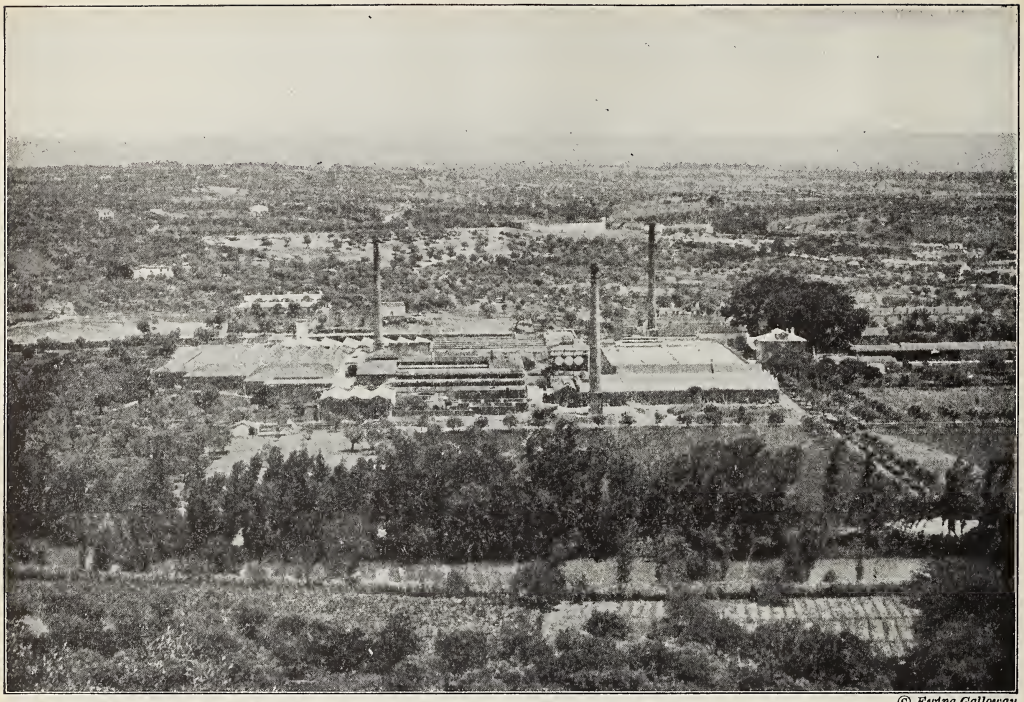

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Figure 123

or of lowland? The highlands of Portugal form the steeply sloping edge of the Spanish plateau, cut into many hills and valleys. There are not in Portugal, therefore, wide, flat uplands, as there are in the interior of Spain. Should you expect that much land in Portugal would be used for pastures and that the raising of animals would be important, or not? Which part of Portugal is the better part for raising cattle? Why? What animals should you expect to find more numerous than cattle in the part of Portugal which has dry summers? Check your conclusions by the maps in Figures 21 and 22. Many goats also pasture on the drier lands of the south. You will see from the map in Figure 20 that there are many pigs in Portugal. Some of them pasture in the oak forests on the hillsides, feeding upon acorns. Others are fed on the farms and in the dooryards of the cottages. It was partly the many dooryard pigs of Portugal which led one writer to call the country "another Ireland."

"Another Spain." — In the products which Portugal supplies to other countries, it is not "another Ireland," but rather "another Spain." Among the more important articles which Portugal has been able to export in recent years are wine, sardines, olive oil, mine props, cork, cotton cloth, fruits and nuts, copper, and a mineral called wolfram. Which of these exports are explained by the important farm crops? This list of exports tells you of what other kinds of work done by the people of Portugal? How many of these products are also produced in Spain?

The wine for which Portugal is best known is the famous *port* shipped from the city of Oporto (Fig. 8). The grapes used in making this wine come chiefly from the terraced slopes of the Douro Valley, which for thirty miles inland from Oporto are covered with choice vineyards. Some fresh grapes also are exported, besides figs, apples, other fruits, and almonds.

Portugal's hills are more wooded than those in most parts of Spain. What fact helps to explain this (Figs. 24 and 25)? Large areas

are covered with pine woods, from some of which mine props are obtained, and oak forests are also extensive. Cork oaks cover about as many acres as olive trees, and Portugal produces as much cork as its larger neighbor, Spain.

Along Portugal's coasts live thousands of fishermen. Sardines and tunny are caught and canned for export in great quantities. As many as 40,000 tons of canned sardines have been exported in a single year.

Portugal has moderate resources of various minerals, but they are not extensively worked. Very little coal has thus far been mined, though northern Portugal is thought to have coal deposits of at least local importance. A British company mines copper in southeastern Portugal, near the copper-producing area of Spain. Portugal ranks among the more important of the world's sources of wolfram, from which the metal tungsten, much used for the manufacture of electric light bulbs, is obtained.

Portugal, like Spain, has little importance as a manufacturing country, though various needs are supplied by local factories. As in Spain, the chief industry is the manufacture of cotton; it centers in Oporto. Figure 123 shows a modern textile factory in Portugal. The Portuguese factories produce principally the cheaper grades of cotton cloth. A part of their product is exported, chiefly to Portuguese colonies in Africa. Other textiles are woven in small quantities.

Do you see that Portugal is in several ways a "smaller Spain"? In proportion to size, Portugal has greater resources than its neighbor. Its lowlands make up a larger fraction of the country. Its average rainfall is greater. Warm temperatures and, except in the south, abundant moisture promote the growth of crops and of forests. But Portugal is a land where many opportunities have not been seized. Its minerals are little mined. Large areas of land, chiefly in the south, lie waste which could be made useful. As in Spain, one great difficulty which has hindered the development of various resources is lack of good transportation. The railroads are not very well managed, and many districts are not reached by them. Most roads are bad, and for years little has been done to repair them. Many of the people are very poor, and most of them have not been taught to read and write. With modern transportation, education, and a wiser government, Portugal should become a land of opportunity.

Two cities. — The coastal position of Portugal's two great cities recalls the country's power at sea in earlier centuries. Oporto is a busy, modern city, alive with commerce, and, in less degree, with industry. As the outlet to the vineyards of the Douro Valley, it is a wine-manufacturing city, as well as a great wine port. The main harbor which serves Oporto is at the mouth of the river, a little downstream from the city. Lisbon (Fig. 8), the capital, became great in the days of Portugal's sea power. In Portuguese cities, as in the towns of Spain, the plaza is commonly a central feature. The heart of Lisbon is "Commerce Square," a space closed on three sides by government buildings, but open on the south to the broad waters of the Tagus estuary. Beyond the square the city spreads over the face of the slope which fronts the harbor, looking down upon the blue waters where in former times, as now, its ships came in. Lisbon recalls Portugal's sea power in the past; the activities of bustling Oporto give hope for its future.

Summary Exercises

Explaining rank. — What reasons have you found for the facts that Spain and Portugal are not so important in comparison with other European countries as one at first might well expect them to be (p. 127)?

Relationships. — All of the relationships in the following list apply to Spain. Copy them in your notebook under the heading "Spain." Some of the relationships in the list apply also to Portugal. Make a list of relationships for Portugal by selecting

from the following list any which apply to that country, and by *adding any other relationships which you have discovered from your study of Portugal.* After your list has been corrected, copy it in your notebook under the heading "Portugal." Notice that in two of the relationships there are dashes between the items following the arrow. This means that the item before a dash is explained in part by the item which follows it.

1. Large amount of ore mining ⟶ variety and abundance of metal ores near edges of great central plateau.

2. Raising of corn and cattle in northwestern part of the country ⟶ plentiful summer rain; warm summers; mild, moist winters.

3. Raising of many sheep and goats ⟶ much rough, highland pasture; scant summer rains in a large part of the country.

4. Wheat the chief cereal crop ⟶ warm, dry summers in a large part of the country; winter or spring and autumn rains.

5. Olives an important crop ⟶ warm, dry summers and mild winters in a large part of the country.

6. Rich orange-producing district near Valencia ⟶ fertile lowland at foot of slopes edging plateau, warm summers, very mild winters, streams from plateau making irrigation possible.

7. Many vineyards ⟶ long, warm, sunny summers.

8. Little or no logging in most parts of the country ⟶ scant forests in most sections — little rainfall.

9. Forest work in northwestern part of country ⟶ forests — rainy, rugged highlands.

10. Large export of cork ⟶ dry summers and mild winters suited to cork oaks.

11. Sardine fisheries on northwestern coast ⟶ ragged coast, with many harbors; abundant sardines in near-by, warm waters.

12. Manufacture of textiles in Barcelona district ⟶ near-by hills suited for raising sheep, good harbor.

13. Mining large amounts of iron ore and shipping much of it to other countries ⟶ abundant ore near northern coast, local coal not of good quality for use in smelting.

14. Some iron and steel manufacture near Bilbao ⟶ large supplies of ore near-by, sea highway from British coal fields.

15. Backwardness of manufacturing ⟶ lack of high-grade coal; great plateau core of the peninsula, making transportation difficult.

Facts to explain. — 1. What striking facts does the map in Figure 6 show about the distribution of people in Spain and Portugal? What facts have you learned about these countries which help you to explain why the people are so distributed?

2. Rice is one of the crops grown on the farmlands near Valencia. What facts have you learned about this district and about the growing of rice in the United States which help to explain this use of some of the land?

3. In most parts of the Spanish plateau it would not be profitable to use water from the rivers for irrigating lands bordering the valleys. What have you learned about the nature of many valleys in the plateau which helps to explain this fact (p. 128)?

A mineral graph and map. — Is not the idea of great mineral wealth one of the outstanding impressions which you now have of Spain? The following directions will aid you in making for your notebook a graph which shows how the values of various products mined in Spain in a recent year compared. On a fresh page of your notebook print the word "Zinc." Lay a one cent piece to the right of this word on the page, and draw around it the smallest circle you can. Let this circle stand for the value of all the zinc mined in Spain in that year. The value of the copper mined was about three times that of the zinc. How many circles like the one you drew after "Zinc" would you draw after the word "Copper" in order to show this fact? The value of the iron ore mined was three times that of the zinc, the value of the lead six times that of the zinc, and the value of the coal ten times that of the zinc. Complete your graph so that it shows these facts. From what your graph shows and from the fact about British coal stated on page 131, do you think that probably the combined value of these products mined in Spain was as great as the value of the coal mined in Britain that year, or not so great?

On an outline map of Spain and Portugal print the word "Copper" in the part of Spain mentioned in connection with copper deposits on page 127. Print also the names of the other minerals mentioned on that page, in each case placing the name in a part of Spain mentioned there in connection with that mineral. If more than one part of the country is mentioned in connection with one mineral, print the name in each part mentioned. On your map print the word "Copper" in a part of Portugal in which that mineral is being produced (p. 135). Use the map in Figure 66 to help you place the coal-mining districts of Spain and Portugal. Keep the map in your notebook.

Figure 124

ITALY AND ITS LANDLOCKED NEIGHBORS

The roof of Europe. — The Alps Mountains have been called " the roof of Europe." Does the view of cloud-veiled Alpine peaks in Figure 124 suggest to you a reason for this name? " Roof of Europe " means, of course, that the Alps are Europe's highest mountains. It suggests, also, that just as water runs down on every side of the sloping roof of a house, so the rain which falls on these mountains flows off in all directions toward the sea. The waters of streams which rise in the Pyrenees flow only short distances until they join the Ebro or the Garonne and are hurried to the sea. Streams which rise in the Scandinavian highlands have short courses to the Baltic Sea or to the Atlantic. But of the water which falls on the Alpine highlands, a part reaches the North Sea; a part flows west and south to the Western Mediterranean; a part drains southeast to the Adriatic; and a part reaches the Black Sea, far away on the margin of eastern Europe. Other highlands form minor domes and towers and gables, but the Alps are the main *ridgepole* of Europe's roof.

How water partings divide countries. — It is helpful to remember that mountain ridges which part waters, in many cases also part countries. What countries have you studied which include within their boundaries parts of the Alps Mountains? Find from the map in Figure 49 what other countries own land in the Alps. Germany owns only a little of the northern Alpine fringe, and Yugoslavia

a bit of the southeastern slope. What four countries have large areas of Alpine land?

What is the chief stream which carries Alpine waters to the Adriatic Sea (Fig. 49)? To the Western Mediterranean? What river carries waters from the Alps to the North Sea? To the Black Sea (Fig. 8)? Will not the following facts help you to remember how the four main Alpine countries fit together? The part of the Alps which is drained by the Po and other rivers flowing to the Adriatic belongs largely to Italy. The slopes which drain westward to the Rhone belong chiefly to France. Austria owns most of that part of the mountains in which streams flow eastward toward the Danube. With few exceptions, the headwaters of the northward flowing Rhine belong to Switzerland. Boundaries between these countries do not, however, everywhere follow the water partings. Switzerland owns some of the slopes which drain toward the Rhone, the Po, and the Danube, as well as the lands of the upper Rhine.

Rivers and languages. — What have you already learned about the languages spoken by the Swiss people (*Journeys in Distant Lands*, p. 90)? Do you see that it would be easy for languages to spread up river valleys into the mountains? How does what you have just learned about Switzerland's boundaries help to explain the several languages spoken in Switzerland? The language boundaries, however, do not correspond closely to the water partings. For example, though German is the language of most of the "Rhine country," French has spread beyond the Rhone Valley into the northwestern part of the Rhine lands. Italian is spoken in the southeastern part of Switzerland which drains toward the Danube, though Austria, the "Danube country" on the east, is German speaking.

Landlocked countries. — You can see at once from the map in Figure 49 that the streams which rise in the French Alps flow to the sea through France, and that those which rise in the Italian Alps flow to the sea through Italy. But the streams which rise in Switzerland and Austria must flow to the sea through other countries, for these two countries are surrounded by land. You may think of Switzerland and Austria, then, as Italy's landlocked neighbors.

Alpine passes. — Since Switzerland and Austria have no seacoasts, they are, of course, keenly interested in the routes which lead to the sea through other countries. The routes through Italy are their shortest ways to the sea. To Italy, the Alpine routes which lead through Switzerland and Austria to the countries of northern Europe are especially important. All land trade between the North and Italy passes through one or the other of these countries, or through France. The countries of northern Europe, then, as well as the Alpine countries themselves, are interested in the passes through the Alps.

A journey from Italy across Switzerland through St. Gotthard Pass was described in *Journeys in Distant Lands* (pp. 84–92). Find this pass on the map in Figure 49. It is at the place where the headwaters of a stream flowing south toward the Po are very close to the headwaters of a stream flowing north toward the Rhine. There are many other passes in the Alps at places where the headwaters of Italian streams are close to the upper valleys of streams belonging to the Rhone, the Rhine, or the Danube river system. Some of the routes by way of these passes are followed by railroads. How many railroad lines which cross the Alps can you count on the map in Figure 49? How many of these join Italy and France? Italy and Switzerland? Italy and Austria? There are other passes crossed only by wagon roads. Figure 125 shows the road through an Alpine pass on the Swiss-Italian frontier.

The lowest of all the passes across the main range of the Alps is Brenner Pass (Fig. 49), on the boundary between Italy and Austria. Since this pass is so low, the railroad through it is on the surface, but tunnels had to be dug beneath the higher passes followed by the other three railroads which cross the mountains.

Find on the map in Figure 49 the stream leading

Figure 125 © *Underwood and Underwood*

up to Brenner Pass on the Italian side, and trace the stream from its source to the sea. Find the valley leading down from the pass on the Austrian side, and trace it to the northern boundary of Austria. Figure 126 shows a town north of Brenner Pass through which you would travel if you followed this route across Austria. Notice the snow-capped mountains which rim the valley in which the town lies. Notice from the map in Figure 49 that during the entire journey across Austria by this route, you would be among mountains.

In the high Alps. — Life in the high Alps, whether in Switzerland, in Austria, or in Italy, is much the same. What do you see in Figures 127 and 128 which reminds you of scenes you saw in the Swiss mountains (*Journeys in Distant Lands*, pp. 83–97)? The picture in Figure 127 was taken in Switzerland and that in Figure 128 in Italy, near the Austrian frontier.

How do the houses in Figure 127 differ from those in Figure 128? Do you not remember, however, that many houses in Switzerland are similar to those in Figure 128? Pieces of slate were used for the roofs shown in Figure 127 because rock of that kind was found near-by. Large pieces of slate are heavy enough to stay on the roof without being fastened or weighted down with stones.

What do you think is growing on the land around the buildings in Figure 127? Do you recall that hay is one of the chief crops in the Swiss highlands? The fields in Figure 128 are used in the same ways as many fields in the mountain valleys of Switzerland. For what do you think the woman near the right-hand side of the picture has been using her rake? At what season was the picture in Figure 128 taken? Where would you have to go at this season to see the cattle that will later eat the hay cut from some of these fields? Milk, butter, and cheese are, of course, important products of the Alpine lands of Italy and Austria, just as they are of Switzerland.

The lower mountains. — The fact that many houses in Alpine countries are built chiefly of wood (Fig. 127) suggests what kind of work? Forest work is important in many Alpine districts and especially so in the eastern Alps, which are in general lower than the central and western mountains and thus are in larger part wooded. About one-third of all Austria is covered by forests, and wood is one of the country's more important exports. There are more than five thousand sawmills in Austria which are run by water power. How do Austria's mountains help to explain the power which runs the sawmills as well as the forests which supply the timber?

In another way the Alpine section of Austria differs from the Swiss and Italian Alps. In the Austrian Alps minerals of various kinds, iron, coal, copper, lead, zinc, salt, graphite, and others, are mined. The production of copper, lead, and zinc, however, is small, while Austrian coal mines supply chiefly low-grade brown coal and far less than enough to meet the needs within Austria. On the other hand, there are great quantities of iron ore of high quality near the eastern end of the Austrian Alps, even after centuries of production. Iron and other metals are used in many factories in valley towns there. Because of their metal-working industries, these towns are larger than is common elsewhere in the valleys of the Alps.

Where population is densest. — Find from the map in Figure 6 in which part of Austria the greater

Figure 126

© Ewing Galloway

Figure 127

By courtesy of the Swiss Federal Railroads

number of people live. In what part of Switzerland is the population densest? In Italy, there are several areas of dense population. Where is the largest of them? What facts can you find from the map in Figure 49 which help to explain these areas of dense population? You see, then, that in all three countries the areas of denser population, and so of greater importance, are *outside* of the Alps. Is the lowland area of Austria a large part of the country, or a small one? Switzerland, as you see from the map in Figure 49, has no lowland. The more densely settled part of the country is a narrow plateau extending from east to west along the northern base of the Alps. It is about how high above sea level? Much of this plateau is very hilly. However, it is lower and less rugged than the mountains which border it. It is not surprising, then, that in this narrow belt of plateau there are crowded most of the factories, a large part of the people, and all of the large cities of Switzerland.

"Crossroads cities." — Imagine a line drawn across Switzerland through Geneva, Bern, and Zurich (Fig. 49). Notice that

Figure 128 © *Underwood and Underwood*

other smaller cities are also on or near this line. This belt of cities lies along the route through the less hilly part of the plateau, the least difficult route of travel across Switzerland from northeast to southwest. Where the better routes over the Alps cross this best route from northeast to southwest, there are large cities. Why? Which city is due north of St. Gotthard Pass? This is the largest city of Switzerland. Explain, using the map in Figure 49, why the site of Bern is a natural one for a city. Do you think Bern has a better site for a *capital city* than any other of the largest four cities? Why? Basle and Geneva are sometimes called the " gates " of Switzerland. Do you see why? What routes pass through these gateways? These cities at great " cross-roads " are important manufacturing cities as well as commercial centers. To them electric energy is brought from hydroelectric plants in the mountains for use in industries and in other ways. Zurich, the largest city of Switzerland, is the chief center of the machinery manufactures and textile industries which help to make possible the dense population of the Swiss plateau.

The great capital of a little country. — There is a fact about the population of Austria which is very surprising. Near the northeastern corner of the country is Vienna, the capital, one of the greater cities of Europe. Austria is a small country, with about six and one-half million people. Nearly two millions of them, more than one-fourth of all the population, live in Vienna. Does it not seem strange that such a small, mountainous country should have so large a capital? As you read about Vienna, find facts which help to explain the city's surprising size.

Vienna lies in a small, fertile basin, surrounded by fields of corn and wheat, and by vineyards, orchards, and gardens. From Vienna one sees the sun set over the peaks and ridges of the Alps. To the east, a row of hills separates the Vienna Basin from the vast plain of Hungary (Figs. 8 and 49). Through a gap in these hills, the broad Danube, which flows past Vienna, enters the plain beyond.

A canal carries water from the Danube through the heart of the city. Find this canal on the map of Vienna in Figure 240. Find on the map the street which, together with a strip of the canal, forms a circle near the center of the city. This broad avenue is called the Ring. Like the circular boulevards of Paris, it marks the position of a wall which once inclosed the city. Within and near it, tower tall church spires and stately public buildings. Wide parks and gardens surround princely palaces. A great university, splendid museums, theaters and music halls, factories and canal quays, suggest that Vienna is the " Paris of the South," a center of culture and pleasure, of industry and commerce. Fine old buildings remind one that Vienna is a city which has long been great.

Notice on the map in Figure 49 that a

narrow lowland leads northeastward from Vienna between the Carpathian Mountains and the highland of Bohemia. This gap became, centuries ago, a much traveled road between the plain of northern Europe and the South. Where this road crossed the east-west route along the Danube an early city grew. This city at the crossroads, surrounded by a small but fertile basin, became a center of trade and industry. In time it became the capital of a great kingdom. Not only the land which now belongs to Austria, but other land to north and south and east was then governed from Vienna. The city grew as the capital of a great country. Within the lands of Austria were peoples of several different languages. As a result of the World War, the different peoples of the kingdom formed nations of their own. Of a large kingdom, only a small part remained to Austria. Vienna was left as the great capital of a little country.

Lost coal fields. — The story of Vienna's lost empire helps also to explain some of Austria's present industries. In the former kingdom of Austria there were large and valuable coal deposits. These home supplies of coal encouraged the development in Austria of the iron and wood-working industries for which Austria had the raw materials. The coal also promoted the manufacture of textiles, rubber, and other wares for which raw materials were imported. Austria has now lost the more valuable part of its former coal resources. It has, of course, also lost many of its factories, but many are left within its limits. To keep these factories running, Austria must import both coal and raw materials, and must then sell the manufactured products in part to other countries. Thus Austria's former wealth in coal helps to explain why the country still exports large quantities of manufactured goods for the making of which it has neither fuel nor materials. Since Austria formerly had plentiful coal, it has not made so much use of electricity obtained from water power as Switzerland has. The increased use of hydroelectric power will help to solve Austria's problem.

A powerful nation. — Austria's loss of lands has left it a small, weak country, as compared with its neighbor, Italy. Italy, indeed, gained some of the land which Austria lost, and is an even more important country than before the World War. Unlike its Mediterranean neighbor, Spain, Italy is counted among the greater powers of Europe. Yet Italy is less than two-thirds the size of Spain. It has no wealth of coal or ore. Much of its land is mountainous. As you study Italy, find any facts which help to explain how it has come to be a powerful nation.

1. Do you think that Italy has a better position than Spain for trade with all shores of the Mediterranean Sea, or a poorer one? Why?

2. Does Italy have a better or a poorer position than Spain for trade by land with central and northern Europe? What you have learned about differences between the Alps and the Pyrenees should help you to answer this question.

3. Has Italy more, or less, land with little rainfall than Spain (Figs. 24 and 25)? Is the area of lowland in Italy greater than that in Spain, or smaller?

4. After studying the maps in Figures 8, 24, and 25, do you think Spain or Italy has the greater amount of water power? Why?

5. Do you think it would be as difficult to build roads and railroads from one lowland to another in Italy as in Spain? Why?

6. Do your answers to the preceding questions show you some reasons why Italy has come to be a more important country than has Spain? Check your answers as you read further.

7. Also, as you study further, find differences between the northern and the southern parts of Italy. Find which of these parts you think has helped more in Italy's rise to importance.

A fertile plain. — Between Italy's northern mountains, where the summers are short and cool and where snow lies deep in winter (Fig. 129), and southern Italy, where winters are mild and sunny and the plains are scorched by the heat of summer, lies the valley of the

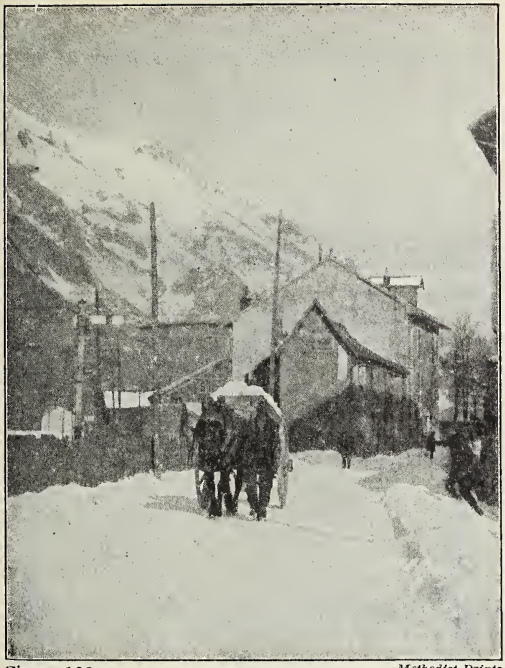

Figure 129 *Methodist Prints*

Figure 130 © *Ewing Galloway*

Po (Fig. 49). It is a plain of great fertility.

The pictures in Figures 130 and 131 were taken in the Po Valley. Find the mulberry trees planted in rows across the wheat fields shown in Figure 130. In what other place have you found mulberry trees growing (p. 55)? What, then, does their presence in the Po Valley suggest to you about the summer temperatures there? Notice, in Figure 131, the canal in the foreground and the irrigation ditches bordered by low shrubbery. In the long, narrow fields near the center of the picture, there is growing a mixture of clover and grass. These fields are irrigated and kept green throughout the year. From them, six to twelve crops of hay are gathered each year. What trees common in most Mediterranean lands are missing from the landscape in Figures 130 and 131? Do these trees occur commonly in any part of the Po Valley (Fig. 63)? What does the absence of olive trees from most of the plain suggest to you about the climate there? Find from the maps in Figures 27, 28, 29, and 30 what the more important grain crops of the valley are. Besides large quantities of corn and wheat, more rice is raised in the Po Valley than in any other part of Europe. See the maps in Figures 62 and 64 to find for what other crops some of the valley lands are used. In the eastern part of the lowland much hemp is grown. What do the maps in Figures 20, 21, and 22 tell you about animal industries in the Po Basin? From the maps in Figures 24 and 25, find in which half of the year the greater amount of rain falls there. Is this what you would expect, after finding what crops and stock are important there? Check the ideas you now have of the Po Valley by the following paragraphs.

In winter, bitter winds often blow into the Po Basin from the northern mountains. Olive trees thrive, therefore, only on the more sheltered, sunny slopes, and on some lowlands in the southeastern corner of the valley. Summers, on the other hand, are long and hot. The Po Valley differs from southern Italy and from most Mediterranean lands in having most rainfall in summer. Good crops of grain and hay can be raised there without irrigation. However, crop yields are increased greatly by irrigation. In some irrigated fields, summer crops of beans, corn, or clover are raised after the winter wheat is harvested. Large areas in the Po Valley are irrigated readily, since the summer melting of snows in the Alps and the autumn and winter rains in the Apennines (Fig. 8) pour great quantities of water into the rivers of the plain. Some land is irrigated from springs. The warm summers and the abundance of irrigated land help to make rice an important crop.

Figure 131 *By courtesy of the United States Department of Agriculture*

The Po and its tributaries are constantly building their beds higher by depositing vast quantities of silt brought down from the mountains. Along their lower courses they now flow at levels higher than the surrounding plains, and their waters are confined by dikes. Some water soaks through the embankments in places and wets the land near the rivers. Some of these moist lands which are not too wet are fertile meadows on which large crops of hay are raised. Some are drained and cultivated. In other places, there are marshes near the rivers. The large amount of hay raised on meadows and irrigated fields has helped the plain to become an important dairy district, and cheese is a valuable product.

Throughout most of the plain, cultivation is intensive. Even the brush which grows along the roads and ditches (Fig. 131) is used. It is cut from time to time, and the fagots are stored in sheds and barns for fuel. In the foothills which rim the green and fertile plain, many slopes are clothed with mulberry trees, orchards, and vineyards. Others bear chestnut trees or serve as grazing lands for the sheep of the lower Alpine valleys. The Po Basin, larger and better watered than any of Spain's lowlands, has helped much in making Italy an important agricultural country.

Piedmont cities. — The Po Plain is not only a land of rich and varied cultivation but also the site of many cities, most of which grew up in this fertile lowland centuries ago.

Find on the map in Figure 49 the belt of cities partially encircling the Po Valley. The cities which form the northern part of this belt lie at the base of what mountains? Those which form the southern part? In what other countries do you know of belts of cities along the margin between highland and lowland? What probable reasons can you give for the growth of these *piedmont* towns of Italy?

Which are the largest two cities of this belt? What reason for their importance can you find from the map? Just as Milan and Turin command good routes across the Alps, so the largest city in the southern row of towns controls the best route across that portion of the Apennines between Genoa and the Adriatic coast (Fig. 49). Notice the railroad which connects most of the piedmont cities. Do you see that some of these Italian towns, like Switzerland's larger cities, have grown at crossroads?

Passes and ports. — Long before the days of railroads, trade between northern Europe and the Mediterranean flowed through the Alpine passes and across the plain of the Po. Venice and Genoa are seaports which grew rich with the aid of this traffic. Their vessels brought from the eastern shores of the Mediterranean goods which had come from eastern Asia. Some of these they traded with people beyond the Alpine passes. From Genoa wares were sent across a pass in the Apennines north of the city, on into the Po Valley, and thence northward by way of one of the passes in the western or central Alps. By which of the Alpine passes do you think wares would be sent northward from Venice?

Manufacturing in piedmont towns. — Piedmont towns in the Po Valley, however, do not depend wholly upon trade. The streams which rush down the mountains supply a vast amount of water power. Since streams which flow from the Alps are fed in summer by the melting of snow and ice in the mountains, they do not shrink in summer as do the streams in southern Italy and most of those in Spain. This fact helps to make Italy's water power resources greater than Spain's, and explains in part why Italy is much more important than Spain as a manufacturing country. As you should expect, the greater cities of the Po Valley are those which are well placed not only for trade through the mountains but also for using the power which the streams of the mountains supply.

Milan. — Milan's favorable position for using water power, as well as its relation to Alpine passes, has helped it to become the queen city of the plain. Notice the several large lakes in the hills behind the city (Fig. 49). These lakes through which the rivers flow serve as great reservoirs to store water in time of flood, and to supply water in time of drought. They help to make the portion of the Alps near Milan the best part for the use of water power. Milan is thus a city of many factories. As you might expect, the wool and silk industries are important ones there. What have you learned about the uses of lands near Milan which helps to explain this? In addition to the local supplies of wool and raw silk, much of both is now imported. As in most cities which began early to manufacture woolen goods, the cotton industry, which requires similar machinery and skill, later became important. The manufacture of iron, steel, and machinery, for all of which the raw materials must be imported, is also a great industry at Milan.

The district of the great lakes in the foothills of the Alps north of Milan is much visited by tourists. After looking at Figure 132, which is a picture taken on the shore of one of these lakes, can you tell one reason why? Also the climate is pleasant, as the lake district is above the heat of the plain in summer and is sheltered from cold winter winds. Milan, the city from which this district can be reached most easily, is thus a center of the tourist trade.

Two seaports. — Since most of the industrial cities and towns of the Po Basin are in its western part, what seaport shown on the map in Figure 49 do you think probably serves as the chief place of entry for the imported materials used in the factories of the basin? The manufactures of the Po Valley have helped Genoa to become the seaport of Italy which leads in the tonnage of imports and exports. Indeed, about one-fifth of all Italy's foreign commerce passes through Genoa.

Venice, the eastern entrance to the plain of the Po, though now a less important

Figure 132

By courtesy of Italian State Railways

Figure 133

© Ewing Galloway

port than Genoa, is a city of interest and beauty. Built wholly on islands, and crossed by many waterways, Venice is a city of the sea. It lies in the midst of a lagoon which is almost shut off from the Adriatic by a narrow bar of sand. A railroad bridge two and one-half miles long connects Venice with the mainland. The many waterways which wind through the city divide it into more than a hundred small islands. Though there are streets on the islands, all the through traffic of the city is carried on by boats. In Figure 133 you see the Grand Canal, the broadest of the city's waterways, and a graceful, arched bridge which crosses it. The long, slender boats which you see on the canal are called gondolas, and the boatmen are called gondoliers. These boats are used for carrying both people and freight from place to place in the city, much as in other cities wagons, trucks, automobiles, and street cars are used. Bordering some of the canals, as in Figure 133, there are paved walks.

Figure 134 © Ewing Galloway

Along many of them, however, there are no walks, and the water washes the doorsteps of the houses. The soft colors of the buildings mirrored in the dancing green waters of the canals, the swift movement of the slender gondolas as they skim through the water, the insistent cries of the gondoliers, make Venice different from any other city. It attracts thousands of tourists each year, for it is a city of rare charm.

Rome. — It was not in the productive Po Valley, but in one of the small coastal lowlands between the Apennines and the sea that the most famous city of all Italy grew. To understand how Rome (Fig. 8) became, in earlier days, the capital of a vast Mediterranean empire, you should notice that Italy has a central position in the Mediterranean, and Rome a central position in Italy. Notice also that the valley of the Tiber, the river on which Rome stands, provides a route back into the hills. From Rome, all Italy could best be conquered. Also Rome is at the place where the early north-south road along the coastal plain crossed the Tiber. The sea trade of the city was carried on by a near-by port at the Tiber's mouth. The famous "seven hills" on which Rome was built made the city less difficult to defend than a site on the level plain would have been. Nevertheless, Rome at last was conquered by invaders from the north, and never has regained its former power. It is, however, the capital of Italy, and a noted center of art and culture. Many visitors are attracted by its beautiful buildings and by the historic interest of its ruins.

A comparison. — On the maps in Figures 8, 21, 22, 24, 25, 27, 30, 62, 63, and 120, compare the Po Plain with that part of Italy south of the valley. What important differences between the Po Plain and southern Italy do you find? What facts have you learned which help to explain the differences between north and south which the maps in Figures 21, 22, 30, and 63 show? After studying these maps, do you think that the crop lands of Italy are confined to the lowlands? Indeed, there are parts of southern Italy in which some of the hill slopes are better cultivated than the neighboring plains. Though some of the coastal lowlands are very productive, as is the plain near Naples (Fig. 8, and *Journeys in Distant Lands*, pp. 74–75), others are marshy. Malaria has hindered progress in various parts of the lowlands of southern Italy. This helps to explain why many towns in the south are perched on hilltops, and why cultivated fields and orchards in many cases extend far up the slopes of the Apennines. The following description of an Apennine farm will show you some of the methods by which Italian farmers make a living from the hillsides.

Farming on an Apennine hillside. — The farm lies in a sunny pocket on the mountain slope, not far from the place shown in Figure 134. Past the farm a white road similar to that in Figure 134 winds up the mountain side. Along this road you might see yokes of large white oxen, such as those in Figure 134, drawing carts laden with produce down to the little town at the mouth of the valley. A small stream flows past the farm, tumbling swiftly over a rocky bed. The upper slopes of the mountains which rise far above this little valley often are mantled with snow in winter and early spring. In summer, the mountain peaks loom darkly against the brilliant blue of the Italian sky.

One slope of the steep hillside belonging to the farm is terraced, and on the terraces there are rows of olive trees. Planted close to the olive trees are grapevines, which have climbed over the trees and trail as long festoons from tree to tree. Some of the water of the stream is led off through little channels to irrigate the vineyards. Between the rows of trees and vines are planted grain and fodder crops — wheat, corn, oats, barley, alfalfa, and hay.

Another rougher and less sunny slope is overgrown with sparse grass and low, evergreen bushes. Here the oxen which belong to the farm are allowed to graze. Near the farmhouse is a vegetable garden, fruit trees, a shed where wood is stored, a wine press, a floor for threshing grain, and a little bake-house where the farmer's wife makes bread. The family lives in the upper story of the house, while below are the farm implements, stalls for the oxen, and cellars for wine and olive oil.

Farm work goes on here throughout the year. In the early spring, the farmer must prune his olive trees, prune and tie up his vines to stakes or branches, and sow corn and barley. A crop of hay is ready for harvest in May, and the wheat in June. Olive trees and vines are sprayed at intervals during the summer months. In late summer, the winter fodder crops are sown. In the autumn, grapes are picked, corn is cut, and wheat, oats, and grass are sown. In December and January, the olives are gathered. Plowing, hoeing, threshing, and the making of wine and olive oil after the autumn and winter harvests, keep the farmer busy many days.

Most of the farmer's income is obtained from the sale of wine, olive oil, and from time to time a few oxen. Some grain, chiefly wheat, and a little fruit also are sold. The fodder crops and a part of the grain are used for the oxen.

Higher up the mountain slopes, much rough land is used as pasture for sheep. On some of the slopes, there are patches of chestnut trees. In the autumn, the chestnuts from these woodlands are gathered. Some of them are dried and ground into meal which is used for bread by many of the people of the mountains. Do you see now that not only Italy's rich lowlands but the careful way in which many of the hill slopes have been used have helped Italy to become an important agricultural country?

Other work. — In southern Italy much less manufacturing is done than in the Po Valley. The South has less water power which can be used. Then, too, transportation, while less difficult than that across the broad Spanish plateau, is more difficult than in the Po Valley. There are numerous factories, however, in some of the towns, such as Naples, which can readily receive and ship goods by sea. Moreover, there are, both in southern Italy and in the Po Valley, many handicrafts in which workers show rare art and skill. Laces, which are made in many Italian cities, carved wood, sculptured marble, the tapestries of Rome, and the colored glass of Venice, are products of industries of this kind. The cart in Figure 134 is loaded with a soft, white stone, called alabaster, which is quarried in western Italy. Sculpture in alabaster is another artistic industry for which Italy is famous.

A final word. — Do you see now that there are many features of Italy which have helped it to become the home of an important nation? It has more extensive and better-watered lowlands than Spain has. A long, warm summer has helped to make its farmlands productive. By much labor many hill slopes have been made to yield large crops. Italy has great resources of water power which have encouraged large-scale industries. Artistic industries were promoted there by the presence in early times of many people of wealth who provided a market for beautiful, expensive wares. The country's early wealth and power were won in part by its central position on the Mediterranean and its favorable position for trade across the Alpine passes. Its position is, moreover, a favorable one for modern trade. The beautiful scenery of Italy and the historic interest of its cities attract many tourists who spend much money in the country. In view of all these facts, you will not be surprised that this productive country has become densely peopled. Its population is about twice that of Spain, in spite of its much smaller size. Indeed, its population has grown so rapidly that the country has been unable to support all of its people. Many Italians have emigrated to America, or to other countries of Europe. These people have sent back or taken back to Italy part of the money which they earned by their labor in other lands. Thus, Italy, in addition to selling some of the products of its farms and factories to other countries, has also sold much *labor*. The labor of its people, as well as its position and its resources, help Italy to be a great nation.

Summary Exercises

Differences. — What differences between Spain and Italy can you now give which have helped Italy to become a more powerful nation than Spain? What differences between northern Italy and southern Italy can you now state? Which of these do you think have helped northern Italy to be the more progressive part of the country?

Facts to explain. — 1. What do you know about the Po River and the lands along it which helps to explain why few towns in the Po Plain are on or very near the Po (Fig. 49)?

2. What city of more than 100,000 people is due south of Bologna (Fig. 49)? What reason can you give for the growth of a large city at this place? A fact stated on page 145 should help you to answer this question.

3. Find on the map in Figure 49 Munich, in southern Germany. Notice its position with relation to the least difficult of the Alpine passes. How does this position help to explain the fact that Munich is the largest city of southern Germany?

4. The manufacture of watches is one of the industries for which Switzerland is famous (*Journeys in Distant Lands*, p. 97). Why is the manufacture of small, valuable articles an industry well-suited to Switzerland?

5. Representatives of the League of Nations hold their conferences at Geneva. What have you learned about Switzerland and Geneva that might help to explain the choice of this meeting place? Consider the location of the country and city with regard to routes from other countries of western Europe.

Relationships. — Each of the following relationships should suggest to you one or more of the countries discussed in this chapter, or some part or parts of those countries. For example, relationship "2" applies to the Po Plain, "3" to Milan, and "7" to Italy as a whole. After each relationship write the name of a country, district, or city which that relationship suggests. If more than one name is suggested, write all the names which you think fit the case. *Some* of the relationships apply to other European countries you have studied, as well as to the countries or parts of countries mentioned in this chapter. Does not "1," for example, suggest Norway to you? After each relationship which applies to any European country or countries studied earlier, write the name or names which are suggested. After your list has been corrected, copy it in your notebook.

1. Dairying ⟶ high mountain grasslands.

2. Dairying ⟶ moist meadows near rivers, many streams from which water can be taken conveniently for irrigation.

3. Silk manufacture ⟶ climate of near-by lands suited for mulberry trees, water power in near-by mountains.

4. Large cities near base of mountains ⟶ junctions of over-mountain routes through passes and route along base of mountains, water power in neighboring mountains.

5. Important logging and lumber industries ⟶ extensive forests on mountain slopes.

6. Olives an important crop ⟶ warm, rather dry summers; mild, moist winters.

7. Large production of wine ⟶ long, warm summers; sunny slopes and lowlands.

8. Orange orchards ⟶ very mild winters; warm summers; fertile lowlands; streams from mountains, making irrigation possible.

9. Raising of many sheep ⟶ fairly dry summers; rough, mountain grasslands.

10. Rice an important crop ⟶ fertile plain; many streams supplying water for irrigation; long, warm summers.

11. Raising corn ⟶ fertile lowland; long, warm summers; moderate summer rain.

12. Manufacturing, using imported raw materials ⟶ former abundance of coal.

13. Towns on hills rather than on neighboring plains ⟶ marshes on plains.

14. Growth of a very great city ⟶ lowland route between highlands, which crosses an important river route.

15. Growth of a great city in early days ⟶ a central position in a peninsula itself centrally located among Mediterranean lands; valley route leading into highland; river crossing; group of low hills, in midst of fertile plain.

Word puzzles. — 1. If you name correctly the five words suggested below, the initials of the words will spell the name of an important Italian seaport. (1) The language spoken in most of the "Rhine country" of Switzerland. (2) A valley in eastern Spain where wheat and sheep are important, as in southern Italy. (3) A seaport of southern Italy. (4) A very important crop in southern Italy. (5) The mountains which form the "backbone" of the Italian peninsula.

2. The first letter in the name of a "gate city" of Switzerland is also the first letter in the name of a famous Alpine pass. The first letter in the name of the capital of Italy is the last letter in the name of that pass. What is the pass?

Figure 135

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SIX NEW EUROPEAN COUNTRIES

Many differences and one likeness. — You will see from the map in Figure 8 that, between Russia and the countries of northwestern Europe which you have studied, a belt of six countries stretches northeastward from Austria to the Arctic Ocean. Notice that Finland, the northernmost of these countries, includes land within the Arctic Circle, while Czechoslovakia, the southernmost, is in about the same latitude as southern Germany.

1. Two of these countries are peopled more densely than the other four. Which two are they (Fig. 6)? In which of the six do you find the greatest amount of very sparsely settled land (Fig. 6)? How does the latitude of Finland help to explain this fact?

2. What can you learn about these six countries from the map in Figure 66? Furthermore, Finland, Esthonia, Latvia, and Lithuania have few mineral resources of any kind. Poland, on the other hand, has important deposits of zinc ore and some iron ore, while in Czechoslovakia iron ore is mined in considerable amounts.

3. With the aid of the maps in Figures 8, 24, and 25, tell whether you should expect to find Finland rich in water power, or not. Tell why you think as you do. Should you expect that Esthonia would have large supplies of water power, or not? Why? Latvia? Why? Lithuania? Why? Poland? Why? Czechoslovakia? Why?

4. What work should you expect to find important in Czechoslovakia and Poland, less important in Finland, which is rich in water power, and unimportant in the three countries which are without deposits of coal, important resources of ore, or large amounts of water power? What reason does your answer suggest for the fact that Czechoslovakia and Poland are peopled more densely than the other four countries?

5. Which five of the six countries have coasts on the Baltic Sea? Which one is landlocked?

6. From the map in Figure 111, in which of the six countries should you expect that forest resources probably are greatest?

7. What kind of work should you expect to find important in all six countries? List the facts which you can find about agriculture in these countries from the maps in Figures 20, 21, 22, 26, 27, 28, 29, 31, and 64. After your study of these maps,

which one of the six countries seems to you to have greater resources in farmlands than any of the others? Which one seems to rank second in this regard?

Is it not clear that the six countries in this belt differ, one from another, in many ways? There is one way, however, in which all of them are alike. All are *new* countries which have recently been separated from larger countries. Finland, Esthonia, Latvia, and most of Lithuania were, before the World War, part of Russia. Poland belonged in part to Russia, in part to Germany, and in part to Austria. The western part of Czechoslovakia belonged to Austria, the eastern part to Hungary. The languages of all the new countries differ widely from Russian, German, and Hungarian, the languages spoken by the nations to which these countries formerly belonged. The peoples of these new nations differ also in other ways from the peoples who formerly ruled them. As you study about these new countries you will find that many changes are being made in them because they have only recently obtained their independence.

Directions for reading. — As you read about these new countries in the following pages, check the ideas which you have gained about them from the maps. Some of the facts which you will learn about them can be understood only in view of the "newness" of the countries. Find all the facts you can which the newness of the countries helps to explain.

The old capital of a new country. — In Figure 135 you see part of the city of Praha (Fig. 49). Although the capital of the new state of Czechoslovakia, Praha itself, as the picture suggests, is by no means new. It has been for many years one of Europe's greater cities. In Figure 135, find the beautiful cathedral which towers high above the city. It was begun centuries ago. Notice the huge palace which spreads about the base of the cathedral. This is used for governmental offices and as the residence of the president of the new republic. Years ago, before Bohemia became part of Austria, Praha was the capital of an independent kingdom. In this vast palace enclosing the cathedral dwelt the former kings of Bohemia. You should think of Praha, then, not as a new-born capital, but as a rich and beautiful old city which has again become, as it once was, the leader of an independent country.

Since the founding of the new state, the old city is bustling with new life. It has become not only the seat of government but also the commercial center of the republic. Much business which formerly was done at Vienna is now done at Praha. The population of the busy city has increased rapidly.

Do you see any reasons why the people of Czechoslovakia should have chosen for their capital a city which is so far from the center of their country? As you learn more about the country, you doubtless will see other reasons for their choice.

Czechs and Slovaks. — Czechoslovakia is the land of the Czech and Slovak peoples. Most of the Czechs live in the western part of the country, and most of the Slovaks in its eastern part. These two peoples are closely related, and speak languages almost alike. They differ much in their ways of living, however. The Slovaks who lived in Hungary were allowed to have very few schools where they could be taught in their own language. It is not surprising, then, that many of them cannot read or write, and that few of them are well educated. The Czechs who lived in Austria were given better opportunities to learn. There are among them very few who cannot read, and many highly educated people. As you might expect, the Czech people have learned to farm more intensively and have developed manufacturing to a greater extent than the Slovaks have done. The differences between ways of living in eastern and in western Czechoslovakia are one of the signs of the newness of the country. If these peoples had lived under a government such as that of Czechoslovakia for a long time, instead of a very short time, they doubtless would be more nearly alike in their ways of work. The new government is trying to afford the Slovaks opportunities to become as well trained and progressive as are the Czechs. Differences in the ways of work and

Figure 136 © *Ewing Galloway*

of life in Czech and Slovak lands depend not only upon the people themselves, however, but also upon differences in the parts of the country in which they dwell.

The land of the Czechs. — Western Czechoslovakia, or Bohemia (Fig. 49), is a rich mountain-rimmed upland provided with coal, ore, water power, forests, and fertile farmlands such as those in Figure 136. Transportation within the highland basin is easy, and a good river route leads to the sea (Fig. 49). It is not surprising, then, that it has become a prosperous farming and manufacturing section. There are many sugar mills which handle the crop from the beet fields and make Czechoslovakia one of Europe's chief sugar-producing countries. There are great breweries which make beer from home-grown hops and barley, and distilleries which manufacture alcohol from the potato crop of near-by farms. Iron and steel mills use Bohemian iron ore and imported ore besides. Wood-working industries are based on local forest products. Bohemian coal fields supply fuel for a textile industry which has become important in spite of the scarcity of home-grown raw material. Important pottery works are located near supplies of clay. The glass factories of Bohemia produce, from native quartz, wares which are world famous. These are only some of Bohemia's many industries. Is it not natural that Praha has become a large and important city, since it is centrally located in this rich agricultural and industrial section? Moreover, streams from east, south, and west flow toward the center of the Bohemian plateau, while several natural land routes leading from the surrounding hills focus on Praha. Do you not see that the land in which the Czechs live has helped them to become a prosperous and progressive people?

The land of the Czechs, moreover, includes not only Bohemia but also the narrow strip of lowland which lies east of Bohemia, between that upland and the Carpathian Mountains (Fig. 49). Conditions in this valley are much like those on the Bohemian plateau. In the South, there are productive farmlands. In the North, near the coal field (Fig. 66), a thriving manufacturing district has developed. The picture in Figure 137 was taken in this district. The natural wealth of this valley, added to that of Bohemia, has helped to make the land of the

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Figure 137

Czechs one of the chief industrial districts of Europe.

The land of the Slovaks. — Eastern Czechoslovakia is less favored than the western part of the country. Iron ore and some other minerals are mined in the mountains, but there is little coal. There are iron and steel factories in the iron-mining district, while many flour mills, distilleries, and some factories of other kinds are scattered through the country, but Slovakia is chiefly a land of farmers, shepherds, and lumbermen. Most of the Slovaks live in valleys and among foothills on the southern face of the Carpathian Mountains (Fig. 8). Heavily wooded ridges separate valley from valley, and railroads are fewer than in the open upland of the Bohemian plateau. The following description of one of the mountain valleys in Slovakia will show the simple way in which many of the people live.

The valley lies at the base of a steep, forested slope, above which tower the highest peaks of the Carpathians. Deer and wild boars may still be found in the dense timber above the valley, and chamois sometimes are seen on the bare crags above the tree line. Deep blue lakes, rimmed by bare-rock walls, lie in hollows high on the mountain side. Health resorts and hotels for summer visitors are scattered here and there through the forests on the mountain slopes. Sometimes women from the valley climb up the paths through the forest, bringing bundles of their embroidery for sale at the hotels.

On the valley floor are little Slovak villages, surrounded by fields, meadows, and patches of woodland. A typical village consists of one or more rows of low, log houses, roofed with wooden slats or thatch, and a small church with a tall spire. Some of the houses are whitewashed or colored a pale blue, and many of the window frames are painted in gay colors. Though families are large, most of the houses have only two rooms, and some have no chimneys. The streets of the village are at times rivers of mud.

In the streets and over some of the neighboring lands, there wander flocks of geese tended by barefoot children. All the cattle of the village are guarded by one herdsman as they graze. On almost any summer day, one may see men and women at work in the neighboring fields of potatoes and grain, and great long-horned oxen pulling rude carts along the valley roads.

Until recently, almost everything the people used was produced on the lands near the villages. All the cloth used for clothing was woven by the women from home-grown flax and wool. The heavy, home-made, woolen cloth used for men's clothing is undyed, and the costumes made of this white cloth, often beautifully embroidered in gay colored yarns, are very striking. Much such work is still done in the homes and the people still wear their quaint, national dress, but more manufactured goods are being brought into the valley, and the old ways of living are beginning to change as these villages have more dealings with the outside world.

Do you now see other reasons why it was natural that the chief Czech city, rather than a city of Slovakia, should be chosen as the capital of the new state? The Czechs have been trained much better than the Slovaks for conducting the government. Also, as you have seen, the western portion of the

new state is much more highly developed industrially, and, naturally, is much more densely settled than is the eastern portion.

Some signs of newness. — With good government, Slovakia should be a prosperous, important part of the new state. Plans already have been made and some work has been done toward building and improving roads and railroads throughout the Carpathian section of the country. Most of the present railroads follow the valleys which lead south toward Hungary. Now, new railroads are needed to connect Slovakia with the Czech lands to the west. As the Elbe gives Bohemia a river route to the sea, so the Danube provides Slovakia with a route seaward (Fig. 8). Since the new country has no seacoast, these river routes to the sea are of special importance to it. Great improvements in the wharves of Bratislava (Fig. 49), the country's chief port on the Danube, have been begun. Bratislava is Slovakia's largest city. *Port improvements, new roads and railroads, and new schools, all are happy signs which recall the fact that Czechoslovakia is a new state.*

A manufacturing problem. — Independence has brought Czechoslovakia some trouble, as well as much good fortune. At least three-fourths of the manufacturing formerly done in Austria and Hungary was carried on in the parts of those countries which now belong to Czechoslovakia. These districts furnished manufactured goods to other parts of Austria and Hungary which had fewer factories. Czechoslovakia now is prepared to manufacture far more than can be used at home. Separation from Austria and Hungary has made it difficult to find a market for all its manufactures. Some factories have been closed, and many industries are less prosperous than formerly. This is one of many problems which the new state is trying to solve.

Farmlands and forests in Poland. — Poland has natural resources which are greater than those of any other one of these six new European countries. Had you not already decided that it ranked first among them in the extent of its farmlands (pp. 150–151)? Did not the facts which the crop maps show about grain, potatoes, and sugar beets in Poland recall to you the neighboring German plain? Why should you expect crops in these areas to be similar? Poland is one of the few countries of Europe which normally produces enough grain for the use of its own people. You may well think of Poland, then, as first of all an important grain-growing country.

As you studied the crop maps (p. 150), did you not wonder why farming seemed less important in eastern Poland than in the western part of the country? Forests still cover almost a fourth of Poland. They are scattered here and there throughout the state, but are more extensive in the southern and eastern parts of the country than they are elsewhere. Why might you expect them to be abundant near the southern boundary (Fig. 8)? In the central portion of eastern Poland, there is an area of low, swampy ground hundreds of square miles in extent. There are few roads in the district, and they are at times almost impassable. In the spring the area commonly becomes one vast lake, dotted with many islands. Within this swampy area, little land can be farmed; there are stretches of waste land among large areas of forest. Furthermore, the belt of lake strewn hills which crosses southern East Prussia (p. 83) continues eastward across northeastern Poland. Much of this hill district is wooded. Thus hills and swamps help to explain the uncleared forests of the East and South, and the fact that farming is less important in the eastern part of Poland than it is in the West. The Polish plain near Warsaw and Lodz (Fig. 8) is the part of Poland which contains least forest.

Riches to be mined. — Figure 138 will suggest to you another of Poland's chief

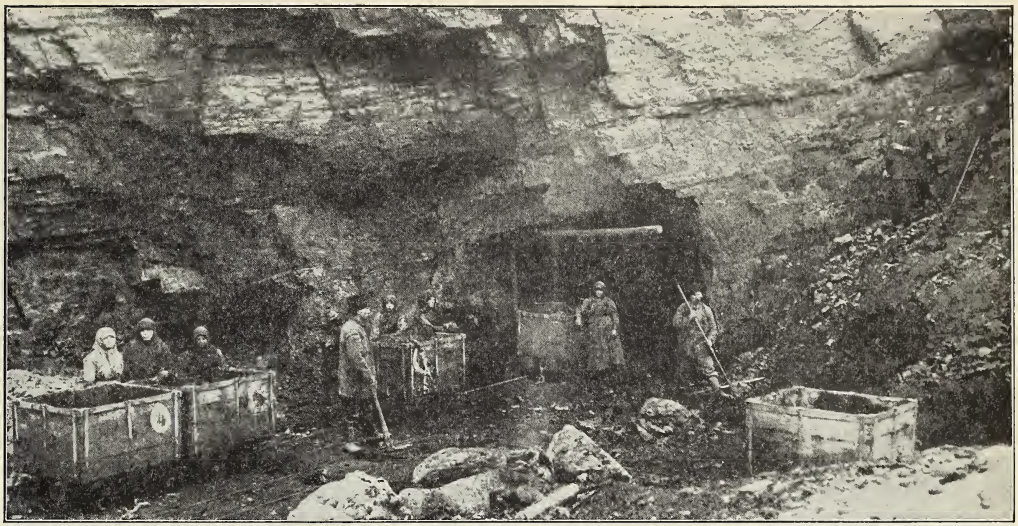

Figure 138

sources of wealth. Find from the map in Figure 66 in what part of Poland this picture must have been taken. It will help you to remember the position of Poland's coal fields if you notice that they adjoin the coal field of German Silesia. Although the coal fields of Poland are not large, Poland nevertheless ranks high among the countries of Europe in coal resources. It is fortunate, moreover, that Poland's deposits of zinc and iron ore are near its coal fields.

Moreover, of all the European countries you have so far studied, Poland alone has large supplies of petroleum. Along the northern slope of the Carpathians there are no fewer than a hundred scattered districts where the surface is dotted with tall oil derricks. The chief producing districts are in the eastern part of the highland.

Poverty in the midst of riches. — In spite of the natural riches of Poland, there are many signs of poverty among its people, especially in the part of the country which formerly belonged to Russia. This part, which is larger than the combined areas taken from Austria and Germany, had been developed but little. Railroads there were few, and badly placed; roads were few and poor; the chief river highway, the Vistula (Fig. 49), was little improved; and much of the land was in large estates, worked by peasants who had no share in their ownership. Many of the peasants who did own land had farms too small to yield a satisfactory living unless they were farmed intensively. The people knew little about good farming methods, and so did not make the best use of what they had. In many rural districts in which there were wide areas of fertile fields, the peasants lived in poor cottages grouped in ugly, squalid little villages. Here and there, at long intervals, one came upon a great, rambling, white manor house, belonging to the owner of a large estate.

The greater part of the people were engaged in agriculture. Large textile and metal-manufacturing industries had developed, however, especially in and near the large cities of Lodz and Warsaw. There transportation was easy, and coal mines were not far away. These great factories gave work to many people, but wages were low and most of the factory workers lived under hard, trying conditions.

One of Poland's problems. — Since the World War and the founding of the new state of Poland, conditions have been worse in some ways than formerly. Much fighting during the war was done on Polish soil. As a result, crops were ruined and homes destroyed. Many farm animals were seized and farm implements removed or destroyed. All the machinery from many factories was carried out of the country. After the war, roads, bridges, and railroads were out of repair. Moreover, though manufacturers obtained in time new machinery for their factories and were ready to do work again, the Russian market, formerly the chief one for Polish manufactured products, had been lost. While Poland was a part of Russia, Polish manufactures could go to other parts of Russia without paying duty. After Poland became an independent state, its products could not enter Russia duty free. Moreover, conditions in Russia were so disturbed by the war that the people there were not able to buy much from any country. It is not surprising that Poland has found it very difficult to make ends meet.

Signs of change. — The formation of the new state brought with it many advantages, however, and a new day of prosperity for Poland seems to be dawning. The former Austrian, Russian, and German parts of the Vistula are now all within Poland, except for the part which flows through the free city of Danzig[1] at the mouth of the river (Fig. 49). Polish goods may pass into Danzig without paying duty. The government is making plans for dredging the river, and for digging certain canals which are needed to provide a satisfactory system of waterways. Poland now owns a small strip of seacoast (Fig. 49), and is building there a new seaport which will help Danzig to handle Poland's sea trade.

[1] Danzig formerly belonged to Germany. When the territory just west of Danzig was given to Poland, Danzig, which has, in large part, a German population, was made a free city.

Some new railroads have been built, and many more are planned. The process of dividing certain large estates and using the land to make farms of moderate size and to increase the size of those which were too small has been begun. The government is trying in various ways to encourage good methods of farming. Much better farming was done in the part of Poland which belonged to Germany than in that which belonged to Russia. Helpful ideas are spreading from the better farmed section to other parts of the new state. Manufacturing also was developed highly in the part of Silesia which Poland obtained from Germany. The important metal industries of this section should add much to the new state's wealth. Factories in former Russian Poland have made changes to meet the new conditions. For example, the great textile mills of Lodz formerly produced chiefly coarse, heavy cloth, which could be sold in Russia. New looms for weaving fine cloth have now been installed, so that Polish cloth can find wider markets than it had formerly. Locomotives, airplanes, and automobiles are new products of Polish industries. Throughout Poland there is change, and in this change there is much hope that Poland will gain the prosperity which should result from its rich natural resources.

At important crossroads. — Warsaw, the greatest city of the new state, is a fitting capital for a country of Poland's size and natural wealth. It is on the edge of the upland above the Vistula, and from its fortress and ancient royal castle one may look down upon the broad river and the wide, encircling plains. Warsaw's place between the two great countries of Germany and Russia, in the midst of a vast lowland, has made it the center of many wars. The old city is rich in history. It has lain not only in the path of armies, however, but also in the path of trade. Trade by land between eastern and western Europe along the great plain

Figure 139 © Keystone View Company

and between the Black Sea and the Baltic Sea has long flowed through Warsaw. The Vistula provides a water route to the sea. Warsaw's crossroads position helped it to grow to great size as a trade center. The many factories which fringe the city add another source of wealth. Though Warsaw has, like most large cities, some poor, squalid quarters, it also has many splendid buildings. Its music halls and theaters, its parks and gardens, show that it is the capital of a people who love art and beauty. The upkeep of the city had been neglected during the days of Russian rule. New buildings now are being erected, and many improvements are in progress. Warsaw, like all Poland, is in a state of change.

Travels in three small Baltic states. — Do the pictures in Figures 139 and 140 show work of the kind which, in view of your map study (p. 150), you should expect to find most important in Esthonia, Latvia, and Lithuania? From what you have learned about Polish farms that formerly were in Russia, what kinds of changes should you expect to find going on in connection with Esthonian, Latvian, and Lithuanian farms? As you read the following descriptions, adapted from the records of a traveler who recently journeyed through these small Baltic countries,[1] add to your picture of these lands any new ideas that are suggested.

1. The long, straight road ran past fields of rye, wheat, barley, potatoes, and blue, flowering flax. From time to time we saw great wooden windmills. We motored through villages which consisted merely of two long lines of wooden houses. As we drove through the single street of such a village, our car sometimes frightened the horses hitched to the long, Lithuanian carts. Between the villages, there were many little timber farmhouses, with roofs of thatch or of wooden shingles. The old farmhouses were surrounded by cherry trees or gray-green willows; the new ones were set in the open fields. On some lands, farmhouses were being built. In many fields were grazing cattle, goats, sheep, and pigs, in little groups

[1] Owen Rutter, *The Baltic States.*

Figure 140 © Wide World Photos

tended by old women or small boys. Many flocks of geese we passed, too, tended by barefooted maidens who recalled the goose girls in the fairy tales.

2. A glance through the window of the train at the Latvian landscape showed me that I was among timber houses again. Some of them, here, were two-storied. Otherwise, the countryside seemed much the same as it had farther south — flat, fertile fields, broken by patches of fir and pine forest, with here and there a belt of birch trees, their silver trunks gleaming whitely in the morning sunshine.

From the banks of the river we watched logs from inner Latvia and great rafts of timber from the Polish and Russian forests drifting down the stream to Riga and the sea. Some of these rafts are over two hundred feet long, made of logs tied together with wire and others flung on top of them. The raftsmen are chiefly Russians. For weeks they live on these rafts, steering with a huge wooden helm, sleeping in little grass huts on top of the rafts, and cooking their food over a fire of sticks as they drift along.

3. We passed a ruined castle, built like all old castles in the Baltic states, high on a hill with a circling stream below. The country near-by was some of the richest in Esthonia. Just as in Lithuania and Latvia, new farmhouses were going up on every hand. Broad plains of ripening grain and flax stretched away from either side of the road, broken, as ever, by little lakes which mirrored the pine trees clustered on their shores. We passed one large estate, now used for an agricultural school.

Baltic farms. — Were not the new farms a sign of change which you had expected to find? What crop seemed important which is not shown on the maps you have studied? Were you surprised to find no mention made of dairy farming in these lands which resemble Denmark in various ways?

Figure 141 shows buildings recently erected

Figure 141 *By courtesy of the Consulate General of Latvia, N.Y.C.*

Figure 142 *By courtesy of the Consulate General of Latvia, N.Y.C.*

on one of these new farms. Some farmhouses are being built to replace homes which were destroyed during the war. Hundreds of them, however, as you probably suspected, are on new, small farms made from former large estates. Do you think any of the houses in Figure 139 are new ones? Of what are the house and barn in Figure 141 built? Where do you think the farmer obtained the timber used for his buildings? Notice the forests in the background in Figures 139 and 141. At least one-fourth of Latvia is wooded, and a somewhat smaller part of Esthonia and Lithuania.

Flax is a very common crop in these countries. In some sections it is grown in small quantities on each farm for home use, and linen for the family is woven from it on hand looms. In other parts of these countries, it is produced on a larger scale for export. Figure 142 shows a flax factory. Linen is not woven in this factory; the seeds are cleaned from the flax there, the stalks are soaked and dried, and the fiber is prepared for sale. You see in the lot in the left foreground sheaves of flax for use in the factory. The summers in these countries are cool and moist enough to be suitable for the growing of large crops of flax for fiber.

Figure 143 is a scene in Finland. Similar scenes are becoming common in Esthonia and Latvia, and efforts are being made to make the dairy industry an important one in Lithuania. One of the signs of change in these Baltic states is that some of the owners of new, small farms are making various experiments similar to those made years ago by Danish farmers (p. 105). Butter already is an important export from Esthonia and Latvia. Lithuania exports large quantities of eggs.

Less than one-tenth of Finland is farmland. How does its latitude help to explain this fact? Had you noticed, too, that much of the country is a low plateau (Fig. 8)? The soil which, in places, overlies the hard rock of this plateau is, for the most part, thin and poor. Finland has been called a "land of a thousand lakes." It has, however, many more lakes than a thousand, and very many swamps. Indeed, about a third of Finland is wet land. Although, for reasons such as these, less than one-tenth of the land is used for farms, the country is so large that a *tenth* of *its* area is equal to about *four-fifths* of the area of Esthonia.

The better farmlands of Finland are in the southern part. If you were to travel through the chief farm districts, you would find that dairy farming is of greater importance there than it is in the three small Baltic states, and that grain farming is of less importance. After harvest, you might see bundles of grain fastened on posts where they will dry faster than they would if left on the ground. Does not this practice suggest to you one of the handicaps to the growing of grain in Finland? Another common practice is the

By courtesy of the University of Helsingfors

Figure 143

By courtesy of the Finnish Legation, Washington

Figure 144

drying of grain in heated sheds. An interesting result of this custom is that Finnish grain is much in demand for seed, because the heat and smoke in these drying sheds kill the harmful insects in the grain. Hay, once dried, is stored in barns, not in open ricks. It is thus protected from the heavy winter snows.

Summers in Finland not only are moist, but also, as you should expect, shorter and cooler than those in the Baltic lands farther south. The fact that such summers are better suited to grass than to grains is one reason why dairy farming has become more important than grain farming in Finland.

Fishing in the Baltic. — Fishing, though important in some of the coastal districts, does not engage very many of the people of the three small Baltic states. Even in Finland, it is less important than you might expect it to be in view of the long coast line of that country. What have you learned about fishing in the Baltic which helps to explain this fact (p. 125)?

The women shown in Figure 144 are cleaning Baltic herring. Finnish fishermen catch greater quantities of these herring than of any other kind of sea fish. In winter, when the Gulf of Finland is frozen over, men fish with lines through holes in the ice. They live in little huts built on the ice, and may be out of sight of land for weeks at a time.

Forest work. — Forest work, like fishing, is more important in Finland than in the smaller Baltic states. *In no other country of Europe is so large a part of the land in timber.* The felling of great numbers of trees, the hauling of logs over the snow-covered ground in winter, and the great

Figure 145 *By courtesy of the University of Helsingfors*

"drives" of logs on the swollen rivers in spring should remind you of similar work in the forests of Scandinavia (p. 122). Logs in vast numbers are floated down the main streams to the coast, to be used in sawmills there or to be exported. Some Russian timber is sent to the coasts of Esthonia and Latvia (p. 158), in addition to that which comes from within their borders.

Factories, forests, and power. — Finland ranks ahead of Latvia, Lithuania, and Esthonia in manufacturing. The chief manufacturing establishments of Finland are sawmills, such as that in Figure 145, and paper mills. Wood-working industries are more important in Finland than in any one of the smaller Baltic states, largely because Finland has a greater wealth of timber and much more water power. Finland's plateau is an advantage for manufacturing, since much power is furnished by the many streams which tumble over its edge to the narrow coastal lowland. The Finnish textile and metal industries have gained some importance, in spite of the necessity of importing almost all of the raw materials for them and the fact that Finland has no deposits of coal. In many factories, advantage is taken of water power, and in some, wood waste from the sawmills is used for fuel. On the seaboard, coal can be obtained readily by water. Even Finland, however, is still a country in which the people engaged in farming are several times as many as those employed in manufacturing.

Ports. — Notice that the capitals, Riga, Reval, and Helsingfors, all are seaports (Fig. 8). When these cities were Russian ports, Riga and Reval handled an important part of the trade of interior Russia. Of the three, Riga became the leading port. What reasons can you give for this fact (Fig. 8)? No shipping is possible at Helsingfors during the winter months because of ice. The harbor of Reval is frozen over for three or four months in most winters, but can be kept open during part of that time by ice-breakers. Riga is ice-bound for a shorter time, and, except for a few days each winter, ice-breakers can keep its harbor open. This fact helps to explain why Riga has become the largest city in the Baltic states. Since the separation of Esthonia and Latvia from Russia, the amount of Russian trade handled at Reval and Riga has been much less than formerly. Finland now has less trade by land than formerly, and is improving some of its harbors and port equipment in order to make possible the handling of a larger trade by sea.

A country without a capital. — You will see that no capital city is shown for Lithuania on the map in Figure 8. Many years ago Lithuania was, as now, an independent kingdom. The city of Vilna was then its capital. Lithuania hopes to make Vilna its capital again, but Vilna now is in Poland (Fig. 8). The boundary between the two countries was drawn as it is because there are many Polish people in and about Vilna. Lithuania is using a city much smaller then Vilna as its seat of government, but the Lithuanians hope that this arrangement is only temporary. You can remember, then, that another of the results of recent changes in the Baltic states is that Lithuania is "a country without a capital."

Improvements and difficulties. — As you read about Finland, did you not wonder why you saw fewer signs of change there than

you had seen in each of the other new countries? Although Finland formerly belonged to Russia, it had a much larger share in its own government than Poland and the small Baltic states were granted.

Do you see now (1) that poor conditions exist in parts of these countries partly because of former bad government, (2) that independence has brought many improvements in these countries, but (3) that separation from bordering states has also brought certain difficulties? Will it not be interesting to watch further changes which may take place in these new countries?

Summary Exercises

A check. — As you read about these new countries did you list the following " signs " of recent separation from other countries?

1. Poor education and slow progress among the people of eastern Czechoslovakia.
2. Poverty and backwardness in parts of Poland.
3. Many new farms in the three small Baltic states and in Poland.
4. Improvements in roads, railroads, and harbors in several countries.
5. Rapid growth of Praha.
6. New buildings and other improvements in Warsaw.
7. Problems which confront many manufacturers in these lands because of the loss of some of their former markets.

Relationships. — From the lists (in earlier pages) of relationships, select and copy all which apply to one or more of these six new countries, or to some part of them. Add to them any other geographic relationships which you can state as a result of your study of these countries. Copy the combined list in your notebook, giving it a suitable title. After each relationship write the name of the country, district, or city in these six new countries which that relationship suggests. If it suggests more than one of these countries, name all that are suggested.

Things to explain. — 1. Remembering a special problem which the manufacturers of Poland and Czechoslovakia have had to face, what probable reason can you give for the idleness of the mills described in the following paragraph?

" On another day we visited the great cotton mills in Esthonia, nine miles from the Russian frontier. It was sad to see so many of the looms idle and two whole mills closed."

2. The Swiss, though their country is small, landlocked, and surrounded by larger countries, have been able to remain independent through centuries, while Poland, much larger and richer, lost its independence and was for a long time divided among countries which had formerly been its neighbors. In giving one reason for this difference, tell what natural protection Switzerland has which Poland lacks along most of its boundaries. Do you think its natural riches tend to make Poland less liable to attack than it would be if it were a poorer land, or more so? Why?

Recognizing maps. — Which of the countries of western Europe do you now think of in connection with the growing of rye? Of corn? Wheat? Oats? Sugar beets? Potatoes? Olives? Oranges? Grapes? In connection with the rearing of cattle? Of swine? Of sheep?

Without seeing its title you should now be able, for example, to recognize Figure 20 as a map showing the distribution of swine. To find how many of the maps in Figures 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 62, 63, 64, and 120 each of you can recognize, you might try the following test. Let one person in each row act as " passer." The passer lists the maps in the order in which he intends to show them to his row. For example, if he chooses to show the olive map first and the sheep map next, he writes " 1. Olives," " 2. Sheep," and so on. Each child who is not a passer writes in a column on a piece of paper the numbers from 1 through 15. The passer covers the title of the map he has chosen to show first, and carries his book along the aisle so that each of the pupils sitting in his row can see the map. Each of these pupils glances at the map as it passes, and then writes after number " 1 " in his list whatever title he thinks fits the map. After each of the maps has been passed in this way, the passer's list is used in checking the lists of the other pupils in his row.

A map game. — To prepare for this game, each pupil should paste, on a piece of cardboard or stiff paper, a large outline map of Europe on which the boundaries between countries are shown. Color on this map each of the countries which you now have studied. Divide the map into sections by cutting it along all the *boundaries of those countries which you have colored.* Put these " cut outs " and the remainder of the map in an envelope. The game is a race to see who can first fit the pieces of his map together correctly.

Figure 146 © Ewing Galloway

JAPAN

In the "Far East." — Japan and China are the two great countries of eastern Asia (Fig. 3). It is difficult to understand eastern Europe and other "middle" lands of Eurasia before knowing the more important contrasts between "The West" and these countries of the "Far East." The sea route from Britain through the Strait of Gibraltar and the Suez Canal to Japan is about twelve thousand miles long. To make the journey requires from five to six weeks. It is not surprising, then, that the people of western Europe came to call eastern Asia the "Far East."

Some Comparisons with Britain

Another island country. — Japan has been called "The Britain of the East." In some ways this is a suitable name for it, but in others it is not.

1. A likeness which suggests itself as one looks at the map is the fact that both Japan and Britain are island countries near the mainland (Fig. 3).

2. The picture in Figure 146, which was taken in Japan, suggests a difference between the two countries. What does the use of land for growing rice lead you to expect about the latitude of Japan as compared with that of Britain? Japan Proper consists of four large islands, Honshu, Kyushu, Shikoku, and Hokkaido, and many small ones. Compare the latitude of the southernmost point in Kyushu with that of the southernmost point of Great Britain (Figures 8 and 147). Does this comparison show that what you had expected to find is true? Is the *northernmost* point in Hokkaido as far north as the *southernmost* point in Great Britain?

3. What do you find on the map in Figure 147 which suggests that in Japan, as in Britain, there is much land unfit for agriculture?

4. From the map in Figure 7, do you find that Japan, like Britain, is densely populated, or not?

5. Find the similarities between Japan and Britain which the following two accounts suggest.

(1) **Early exchanges and protection.** — Centuries ago, the Japanese borrowed ideas from the people of near-by China. For example, the Japanese use the Chinese alphabet, although the Japanese and Chinese languages differ. Not only ideas, but also many commodities were exchanged by the Japanese with people of the mainland.

It proved easier, however, to carry goods and ideas across the seas between China and Japan than

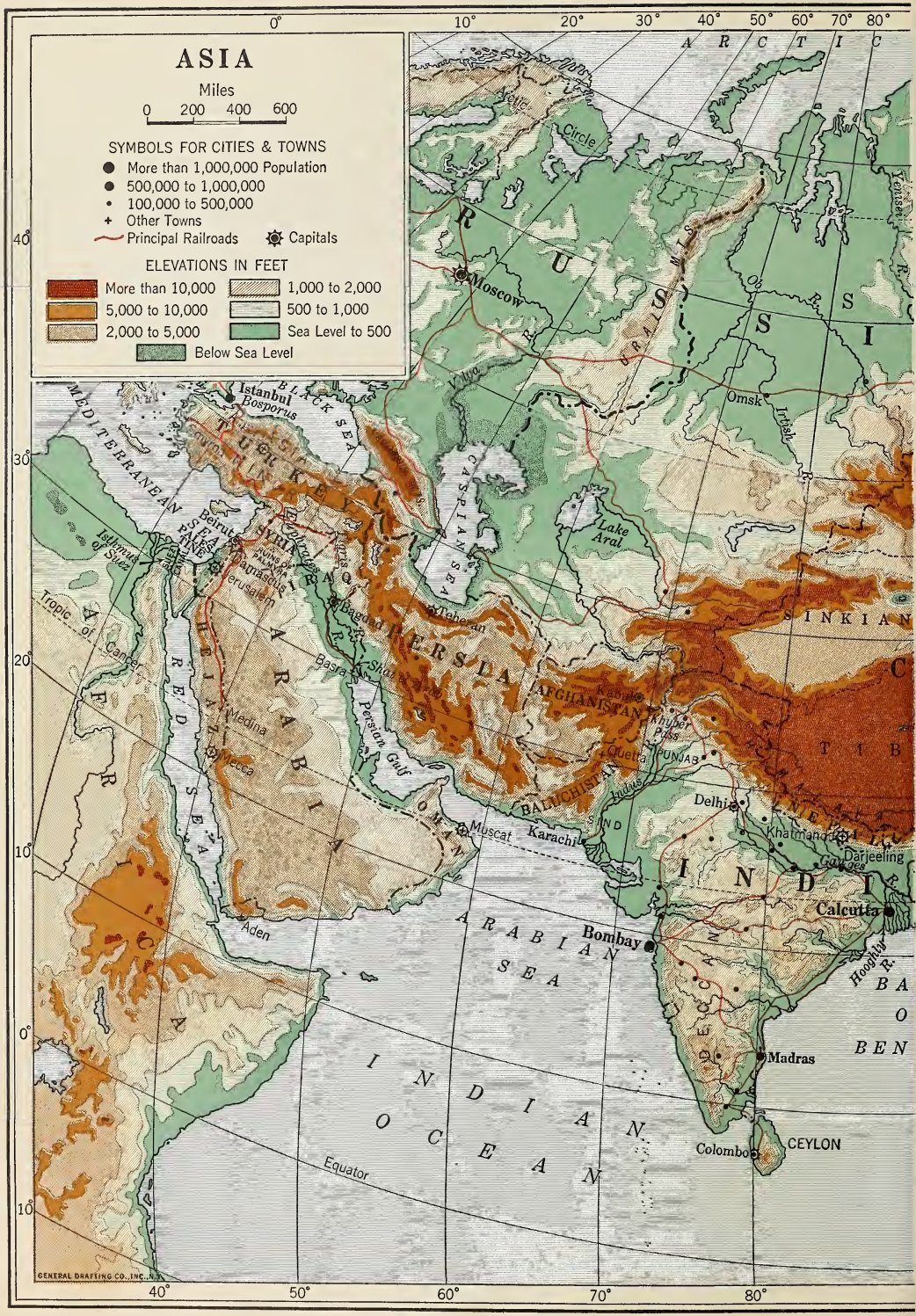
ASIA
Miles
0 200 400 600
SYMBOLS FOR CITIES & TOWNS
More than 1,000,000 Population
500,000 to 1,000,000
100,000 to 500,000
Other Towns
Principal Railroads
Capitals
ELEVATIONS IN FEET
More than 10,000
5,000 to 10,000
2,000 to 5,000
Below Sea Level
1,000 to 2,000
500 to 1,000
Sea Level to 500
0°
10°
20°
30°
40°
50°
60°
70°
80°
ARCTIC
Arctic Circle
RUSSIA
Moscow
Omsk
Irtish R.
Ob R.
Yenisei R.
Ural Mts.
Volga R.
Caspian Sea
Lake Aral
Istanbul
Bosporus
Black Sea
Mediterranean
TURKEY
SYRIA
Beirut
Damascus
Jerusalem
Palestine
Suez Canal
Isthmus of Suez
Tropic of Cancer
Euphrates R.
Tigris R.
Baghdad
Basra
Shatt-al-Arab
Persian Gulf
IRAQ
IRAN
Tehran
Kabul
AFGHANISTAN
Khyber Pass
Quetta
PUNJAB
BALUCHISTAN
Indus R.
SIND
Delhi
Karachi
Muscat
OMAN
ARABIA
Medina
Mecca
Red Sea
Aden
Arabian Sea
INDIA
Khatmandu
Darjeeling
Ganges R.
Calcutta
Bombay
Hooghly R.
BAY OF BENGAL
Madras
Indian Ocean
Colombo
CEYLON
Equator
SINKIANG
TIBET
GENERAL DRAFTING CO., INC., N.Y.

Figure 147


110° 120° 130° 140° 160°
OCEAN
BERING SEA
SEA OF OKHOTSK
SIBERIA
Arctic Circle
Lena R.
Lake Baikal
Amur R.
MANCHURIA
SAKHALIN
HOKKAIDO
Vladivostok
SEA OF JAPAN
HONSHU
Tokyo
Yokohama
Kyoto
Kobe
Nagoya
Osaka
Inland Sea
SHIKOKU
KYUSHU
Nagasaki
CHOSEN
Mukden
Dairen
Kalgan
Peiping
Tientsin
G. of Chihli
Seoul
YELLOW SEA
GREAT WALL
GRAND CANAL
NORTH CHINA HIGHLDS.
Hwang Ho
Yangtse Kiang
Han Kiang
Poochow
Shanghai
Nanking
Hankow
Hangchow
EAST CHINA SEA
Tropic of Cancer
Chungking
Foochow
TAIWAN
Canton
Hongkong
SOUTH CHINA HIGHLDS.
Red R.
Hanoi
HAINAN
FRENCH INDO-CHINA
Mekong R.
Menam R.
Bangkok
Manila
PHILIPPINE ISLANDS
Brahmapu. R.
Irrawaddy R.
Rangoon
Equator
Strait of Malacca
MALAY PEN.
MALAYA
Singapore
SUMATRA
BORNEO
CELEBES
NEW GUINEA
DUTCH EAST INDIES
JAVA
TIMOR
Batavia
PACIFIC OCEAN
40°
30°
20°
10°
0°
10°
140°

Figure 148 © *Underwood and Underwood*

it was to transport armies. In the thirteenth century, there lived in Mongolia (Fig. 147) a great ruler named Kublai Khan. After he succeeded in conquering China and other parts of the mainland, he decided to overpower Japan. In harbors along the mainland coast a great fleet was constructed. The vessels were larger than any the Japanese had ever seen, and the island people felt almost helpless as the great fleet neared their shores. Suddenly, however, there burst upon the fleet a mighty hurricane, or "typhoon," such as now and then occurs along the coasts of Japan and China in late summer and early autumn. The great "junks," helpless in the fury of the storm, were dashed against the shores, tossed upon the beaches, or sunk, and the army was destroyed. Japan remained unconquered.

(2) **Sea harvests.** — The seas not only furnished Japan a highway to the continent and much protection from enemies, but also supplied many excellent fishing grounds. Cod, mackerel, herring, and other fish which abound near some of the coasts of the northern Atlantic are also abundant near Japan. Their abundance is explained in part by a current of cold water which flows from the north along the northeastern shores of Japan. Bonito, yellow tails, and other fish that inhabit warmer waters also are caught near Japan in great numbers. How does the latitude of southern Japan help to explain this fact?

Thousands of Japanese have become skillful seamen as a result of their work on fishing vessels. The fishing industry of Japan is not carried on chiefly by large boats, nor is it centered at a few ports. Hundreds of small fishing villages dot the shores of the islands. Japanese steam trawlers number less than a hundred in all, while more than *three hundred thousand* small fishing boats are used. Some are motor boats, others mere rowboats, but most of them are sailing vessels such as you see in Figure 148. As the very irregular coast line of the islands suggests (Fig. 147), many little harbors afford safe havens for small vessels. The fleets of native fishing boats that operate from them are among the more picturesque sights of Japan.

In many years, the largest and most valuable catch of the Japanese fisheries is that of sardines. Sardines are caught throughout the year near all the coasts of Japan Proper. Some are salted or dried for food to be used at home, others are sold as food in China, and those of poorer quality are dried for fertilizer.

Fishing is probably of greater importance in Hokkaido than in any other part of Japan. Until recently, it was the chief industry of the people living in that island. Indeed, the waters near the shores of Hokkaido are thought to be one of the greatest three fishing grounds in the world.

Surprising facts. — Since Japan has little lowland and a dense population, you might well expect to find that, in Japan as in Britain, manufacturing and trading are more important than agriculture. Moreover, you have seen that the Japanese, like the British, (1) made exchanges with the people of the continent at an early date; (2) were protected from early invasion by the surrounding seas; and (3) developed an important fishing industry which afforded training in seamanship to many men. In view of these facts, do not the following differences between Japan and Britain surprise you?

1. The number of people employed in factories in Britain is much larger in proportion to the population than the number so employed in Japan.

2. The value of the exports and imports of Britain is several times the value of those of Japan.

3. Whereas there are somewhat less than two million farmers in Britain, there are five and a half million farming families in Japan. *Japan is chiefly a farming land, and is almost self-supporting in the matter of food.*

4. Moreover, the farming of Japan is not, like that of Britain, chiefly stock farming and mixed farming, but largely *grain* farming.

Do you not wonder (1) why Japan, with little farmland, and with an early start much like that of Britain, is chiefly agricultural; (2) why grain farming is important, and stock farming unimportant; (3) how it is possible for Japan to be almost self-supporting in the matter of food, and (4) why trade and manufacturing are much less important in Japan than they are in Britain? As you read further, search for facts which will help you to answer these four puzzling questions.

Closed doors. — Early in the seventeenth century, there came to the throne in Japan a ruler who decided that it was dangerous for the Japanese to have any dealings whatsoever with foreigners. Alarmed at the power which missionaries and traders in the islands seemed to have over some of his subjects, he forbade any Japanese to leave his native country, prohibited the building of ocean-going ships, and gave orders to destroy any foreign vessels which might enter Japanese harbors. Japan accordingly shut itself in, and shut foreigners out. The Japanese could not make use of the advantages for commerce which the surrounding seas afforded. Men who had become skillful seamen in the fishing industry could not engage in foreign trade. For about two centuries, the country remained thus isolated. Probably the Japanese could not have kept apart from other peoples so long had they not lived on islands.

During the long period of their isolation, the Japanese had to live altogether on the products of their own lands and waters. Perhaps you know the old saying that "necessity is the mother of invention." So long as the doors of the country were kept closed, the Japanese *had* to find ways in which to make their small amount of farmland supply them with much food.

A belated start. — Had Japan been left alone, it still might have no foreign trade. By the middle of the nineteenth century, however, other countries were becoming more and more aware of ways in which Japan's action hindered their work. Sometimes, for example, whaling vessels were damaged by storms when near Japan, and the crews received hostile treatment at the hands of the Japanese. In 1852, the United States sent Commodore Perry with a fleet to insist upon a change in Japan's treatment of foreigners. The Japanese then realized that the seas no longer afforded as much protection as in the days of primitive boats. They saw that, without modern ships, they would be powerless against foreign fleets. They felt that they must act as others did, or be overcome by superior force. Accordingly, the doors of Japan were opened, trade with foreigners was resumed, and before long great changes were made in the land.

Japan's start in modern trade, however, was very late, and, as you have seen repeatedly, a late start is a great handicap. Britain was a great trading country long before Japan's foreign commerce was renewed.

The third chapter of the story. — The first chapters in the stories of Japan and Britain are much alike. The second chapters are very different, for while Japan shut itself up, British ships ranged the seas far and wide. The third chapter of Japan's story is almost as amazing as the second.

When Commodore Perry knocked at Japan's door, it was a country of little importance. It had not a modern ocean ship nor a mile of railroad. Its roads were poor. Goods were transported from place to place by men, on pack horses, or in small boats. There was, of course, no foreign trade, and not a modern factory existed. Such manufacturing as was done was carried on in the homes. Now, Japan's navy is among the few great ones of the world. Merchant vessels flying the Japanese flag are to be found in the great commercial ports of every continent. There are some ten thousand miles of railroads in the islands, and hundreds of modern factories. In short, Japan is now among the more important countries of the world. Its commerce and manufactures have grown amazingly. However, farming became so important and trade and manufacturing were so neglected during the period of isolation that the country is still, as when Perry entered it, chiefly agricultural.

How Japan's Farmlands Are Used

Scattered farmlands. — Nearly all the farmlands of Japan are in the lowland fringe

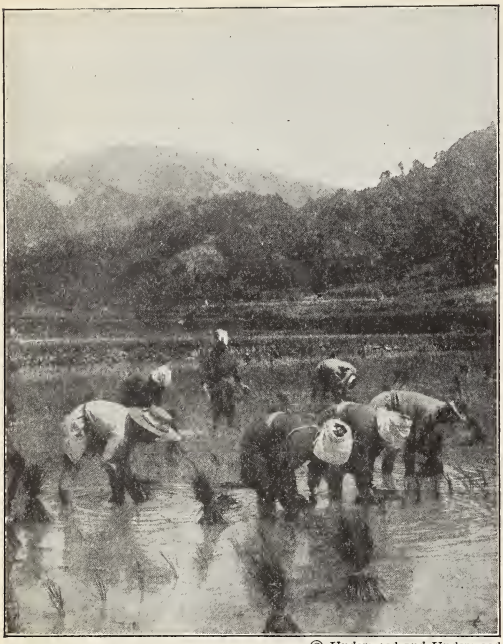

Figure 149 © Underwood and Underwood

which surrounds its central highlands. They are widely scattered, then, and many farming districts are separated from others by mountains. Some cultivated tracts are mere ribbons lying between the coast and the highlands, or in the highland valleys. In many parts of the islands, you might see in a train trip of less than an hour not only farms of various kinds but also much land that is not farmed. After a five minute ride across a little, almost flat lowland, divided into a great number of tiny fields, you might find yourself among forested hills where there are no farms at all. A few minutes later, you might look out upon terraced hillside farms, and shortly thereafter be in a checkered plain somewhat larger than the first. Which of the kinds of lands mentioned can you find in Figures 146 and 149?

Little land and many farmers. — If all the scattered farmlands in Japan could be brought together, they would form a tract about the size of West Virginia. On these fifteen million acres, in round numbers, there work, as you have learned (p. 166), about five and a half million farming families. The average size of the farms, then, is less than three acres. Even in Hokkaido, where the farms are largest, their average size is only seven and a half acres. Millions of Japanese farmers each have less than two acres of farmland. From what you have learned about farming in other lands, is it not clear that these farms must be worked very intensively to provide a family living?

A pasture problem. — You have seen how, in Denmark and other countries where many farms are small, and also in Britain, where there is much upland pasture, stock farming is very important. Should you not expect that in Japan, where farms are very small, and where also there is much highland, the raising of stock would help many farmers to make a living? However, the common native grass of Japan is coarse, spiny, and not good food for farm animals. Moreover, this " bamboo grass " is so hard to kill that it is difficult to grow in its place nourishing foreign grasses that do afford good pasturage. It may be, too, that the Japanese have not tried as hard to make better pastures as they would have done had they felt a greater need for stock. *Since their natural grasslands were not good pastures, the Japanese, shut off from other peoples, turned their attention to developing a type of farming in which stock rearing was almost lacking.* Accustomed to being without livestock and to using fish instead of meat, they now do not feel the need of meat as Westerners do.

Using land for rice. — Somewhat more than half the farmland in Japan is used for growing rice, the staple food crop of the country. *In most parts of Japan, the growing season in the lowlands is long enough for rice to ripen*, and in one of the southern districts two crops of rice are grown yearly. Rice, as you have seen, is a crop commonly grown under irrigation. What do the maps in

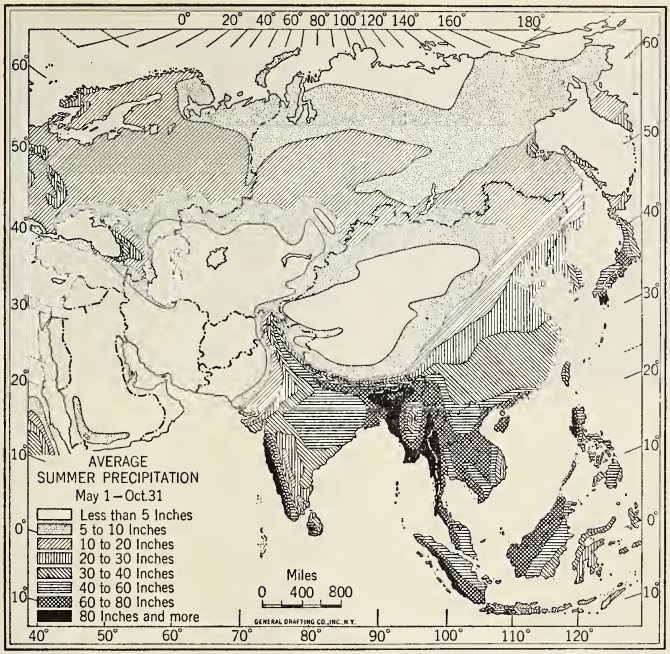

Figure 150

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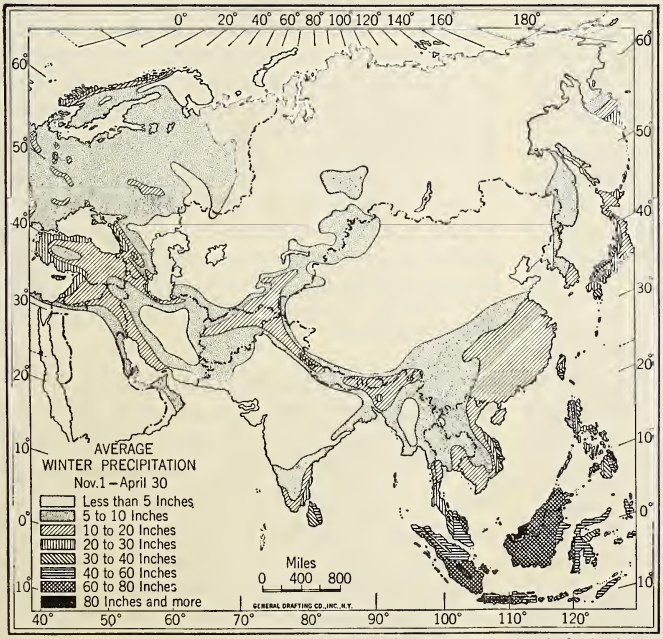

Figure 151

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Figures 150 and 151 show about the water supply of Japan? About nine-tenths of Japan's rice lands are irrigated. The fact that *there is an abundant supply of water for irrigation* helps to explain why so much land is used for rice. Another reason for the use of a large part of the farmland of Japan for rice is the fact that *the quantity of rice which can be raised on an acre is greater than that of any other grain.* For example, the average yield per acre in Japan of rice is thirty-five to forty bushels, somewhat more than half again as great as that of wheat. *Moreover, rice keeps well, even in a moist, warm climate, and is nourishing food.* Whereas most of the wheat which is used as food for man is made first into flour and then into bread, rice grains need only to be husked, polished if desired, and cooked, to be ready for the table. Rice is a crop which demands much labor, and *Japan has an abundance of workers.* What have you learned about the country which helps you to explain this abundance (Fig. 7)? Do you not see that the growing of much rice is one means by which the Japanese have been able to make their small amount of farmland support so many people?

Spending much labor on rice lands. — To make paddies, to bring water to them as it is needed, to prepare fertilizers for enriching the

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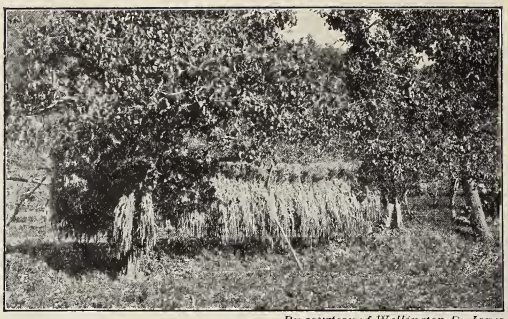
Figure 152

soil, and to plant, cultivate, and harvest rice all require much work. The scarcity of farm animals in Japan makes more difficult than it otherwise would be the problem of making and keeping fertile the soils of the farmlands there. The Japanese have learned to use for the purpose many materials, such as city sewage, the refuse of the fishing and silk industries, ashes of wood and bones, rice chaff and straw, grasses from waste lands, dead leaves, twigs from trees, sweepings from shops of various kinds, the cake left after pressing oil from beans, and, to some extent, mineral fertilizers.

Rice seeds are not planted in the paddies, but in small, richly fertilized seed beds. Planting time varies from mid-April to mid-May, and the plants are transplanted when from four to six weeks old. The paddies by that time have been prepared to receive the young plants by being plowed or spaded several times, then harrowed, and heavily fertilized. Figure 149 shows the tiring nature of the work of transplanting the rice. Notice in the foreground the bundles of young plants, and the row of plants just set out.

More fertilizer is applied from time to time, as needed by the growing plants. Only a small amount is applied each time, however, so that as little as possible will leach away and be lost. Weeding is done repeatedly, sometimes with a small harrow or other hand tool, and ofttimes by hand. Children work now and then in the rice fields, catching insects that might harm the crop. Even where cattle or horses are used for plowing, harrowing, and carrying in the harvest, there is much work to be done by hand.

The water is withdrawn from some paddies before harvest, but the rice on about two-thirds of them is harvested while they are wet. As in Figure 152, the rice commonly is cut with a sickle, a method which leaves the straw uninjured, so that mats, baskets, sun hats, raincoats, sandals, roof thatch, and other useful things can be made from it. Most of the crop is gathered in September and October. Rains are common during harvest time, and it sometimes is necessary for the farmers to make temporary racks or fences on which to hang the sheaves to dry. On many embankments between paddies, mulberry trees are grown, and a pole reaching from one tree to the next often serves as a rack. Figure 153 shows a rack of this type on which grain is being dried.



By courtesy of Wellington D. Jones

Figure 153

Women and children help with the threshing. One method is to draw the heads of the plants back and forth through a row of steel teeth. Some farmers use very small threshing machines worked by hand. Winnowing is done either with the aid of a small machine, or, more commonly, by vigorously fanning the grain as it is poured from one basket to another. The husks of the grain are then removed as the rice is passed through a hand-mill, and the grain is winnowed a second time. If the rice is to be polished, it commonly is placed in a stone or wooden mortar and is pounded with a wooden mallet. Some rice, however, is polished by dealers having larger, modern machines.

Growing "upland" food crops. — "Upland" crops in Japan mean those which are not irrigated. Many of the paddies which can be drained are used for upland crops after the rice is harvested. Barley, wheat, and "muji" (a mixture of wheat and barley) are grown, not only as second crops on drained paddies, but also as principal crops on many "upland" fields, which may be either on low land not suited to rice, or on

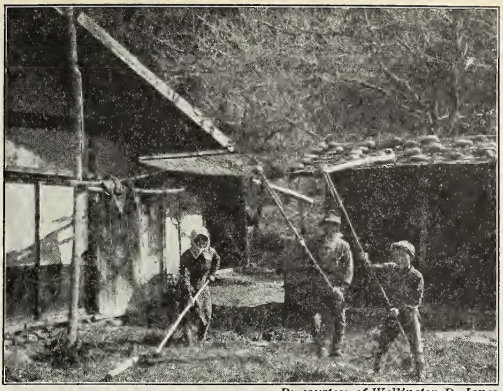


Figure 154 *By courtesy of Wellington D. Jones*

higher lands. The man, woman, and boy in Figure 154 are flailing millet, which is the chief food of poorer farmers in Japan. On the upland farms, as in the paddies, women and children do much farm labor.

Vegetables and fruits also are important crops on upland farms. Beans of many varieties are grown; together with fish, they are the "meat" of Japan, just as rice is the "bread" of the land. Potatoes, onions, cabbages, and various other vegetables familiar in this country are raised, as are also some varieties strange here, such as a spined cucumber called kiuri, and huge white radishes called daikon. Plums, pears that are not much like those grown in the United States, persimmons, peaches, and, in the South, oranges, are common fruits in Japan. The famous Japanese cherry trees are grown not for their fruit but because of the beauty of their blossoms.

Practicing interculture. — Upland fields, as well as paddies, are treated more as gardens than as grain fields. Indeed, most of them *are* gardens in part, for grains other than rice commonly are grown in the same field with vegetables. In early November, for example, you might see in many districts rows of young winter barley between rows of vegetables that are almost ready to be harvested. The vegetable plants are large in the autumn, when the young barley takes up little room, but they were small in June when the previous barley crop was full grown. Of course, the rows of grain are farther apart than they would be if the grain were grown alone, but not twice as far apart. The growing of two or more crops together in this way is called "interculture." Interculture is another way of making a small amount of land produce much food.

Growing a "money" food crop. — Some of Japan's hill slopes, and other uplands such as that in Figure 155, are used for the production of tea. The district that produces more than a third of the tea of the country is a hilly coastal section about half way between Tokyo and Osaka (Fig. 147). On a train ride between these cities one may see tea bushes and orange trees covering many terraced hillsides. Some tea, however, is grown in every district of Japan Proper, except Hokkaido and northernmost Honshu.

Tea plants are pretty evergreen shrubs, whose fragrant leaves are used in making the tea of commerce. A tea plantation looks somewhat like a field of neatly cut hedgerows (Fig. 155). The plants need much moisture, but are injured if water stays about the roots. Do you see, then, a reason why rainy hill slopes are good places for tea? Soil is made rich for tea, as for other crops, by careful and frequent fertilizing. Tea bushes are first picked over at the age of three or four years. Only the tender new leaves at the tips of the branches are taken. Hot, rainy weather makes the leaves grow rapidly, and two or three crops of tea are gathered each summer. Most bushes are valuable producers for from twenty to twenty-five years, and some for much longer.

Besides the bushes themselves, the tall chimneys of furnaces in the farmhouses where tea is "manufactured" are among the striking landscape signs of a tea district. These are the more noticeable because so many Japanese houses are without chimneys. Find

Figure 155 © Ewing Galloway

one of these chimneys in Figure 155. After being picked, the tea leaves are steamed to soften them, kneaded till they are bruised, dried over small charcoal furnaces, and rolled or curled. A part of the tea produced in Japan is rolled by hand in farmhouses, a part by machinery in factories.

Tea-picking seasons are busy times (Fig. 155). Not only are women and girls of the district employed as pickers, but many farmers' wives and daughters come from a distance to help with the harvest. Along the roads near the tea fields you might see men and women carrying great baskets of newly picked tea leaves, and small horse-drawn wagons loaded with bales of manufactured tea wrapped in pink paper. Here and there are the little booths of buyers to whom much of the tea is sold. The little plantations are noisy with the chatter of the pickers.

Although the Japanese are a nation of tea drinkers, they have exported in recent years more than a third of their crop by value. Since so large a part of the tea is sold, it is thought of as a cash, or money, crop.

Producing silk. — Mulberry trees will grow in the mountain valleys of Japan, as well as on the lowlands, and cocoons and silk can be marketed readily for cash, even from mountain farms. It is accordingly easy to understand why almost every farmer in the mountains of central Honshu grows mulberries along with his food crops. It is easy to see, too, why the farmers in many other districts increase their earnings by planting mulberries on tiny " scraps " of land, such as the dikes between their paddies. Altogether, one acre out of every twelve acres of farmland in Japan is used for mulberries, and more than a third of the farm families of the country rear silk worms. By far the most important silk-producing district is due west of Tokyo, in the mountainous heart of Honshu.

Figure 156 *Methodist Prints*

The work of rearing such tiny " livestock " must be done by hand, and it takes much time, skill, patience, and labor. A " card " of silk worm eggs is a piece of cardboard about a foot square upon which eggs have been deposited and to which they adhere. Hatching time can be controlled by regulating the temperature of the place in which the eggs are kept. They must be kept cool until hatching time, and then must be kept for several days at a temperature of more than 70° Fahrenheit. In many cases, rocky caves among the mountains furnish natural cold storage places for the eggs. The spring hatch is in late April or early May, *as soon as mulberry leaves are ready for picking;* the summer hatch is in June or July, as soon as the first crop of caterpillars has spun cocoons; and the last one is in early autumn. The spring hatch amounts to about half the total. For several weeks the worms eat greedily, and must be fed from four to eight times every twenty-four hours. For the baby worms, the leaves commonly are chopped very fine. During a feeding season, there is much work for men, women, and children, and little sleep for some of them. The worms are kept on bamboo trays placed on racks. In some cases they are put in buildings separate from the farmhouses, but more commonly in the lofts or second-story rooms which have been added to the houses for the special purpose of storing them. To carry away stale air and odors from the lofts, ventilators are put in the roofs. The worms grow rapidly. A number that would fill ten trays when less than an inch long will fill more than a hundred trays when full grown. About six weeks after hatching, the caterpillars mount little stacks of straw provided for them, and there spin and wind themselves into the cocoons of silken thread which constitute the " silk harvest."

In some out-of-the-way districts, the silk is reeled from the cocoons by the farm women. A " reeler " seated by the cottage door beside a pot of boiling water in which cocoons are being softened is a common sight there. The women in Figure 156 are reeling silk. Notice the trays of cocoons. Much of the silk now is unwound from the cocoons in reeling mills, which are scattered here and there through the chief silk-producing districts.

Raw silk is a far more valuable money crop than tea, bringing to Japan about sixty times as much from foreign countries as does the tea which is sold.

Spending much thought. — Do you see that each of the uses of land described requires a great amount of hand labor? The Japanese, however, are spending much thought as well as labor in the task of producing a great deal from a small amount of land. There now are colleges or departments of agriculture in several Japanese universities, and in recent years much study has been made of the growing of rice.

One improvement that has been brought about in some districts is the making of larger paddies and the exchange of lands so that all the land one farmer owns is together, instead of being in tiny separated plots.

Soon after Japan's awakening, the government saw the great value of producing more raw silk in order to have more material to trade with other lands. Experiment stations, training schools, and village co-operative societies undertook to help make improvements. Through their efforts, better methods of hatching eggs and of caring for worms were discovered. The use of these methods resulted in a great increase in the yield of silk. Japan has become the leading country of the world in the exporting of raw silk.

In recent years, agricultural colleges, the government department of agriculture, and some landowners have become interested in the problem of using Japanese grasslands, and good stands of forage grasses have been obtained in a few places. More stock is

Figure 157 *By courtesy of Wellington D. Jones*

raised in Hokkaido than elsewhere in Japan. There the farms are larger, the people fewer, and the native grass better than in the southern islands. Little farming was done in Hokkaido until after Japan's "awakening," and, in opening up the farms of the territory, the government secured the advice of foreign experts accustomed to livestock farming. Dairying and the raising of animals for meat have made a good start, and many horses to be used in the army are raised there for the government.

Living simply. — In spite of hard work and careful planning, many Japanese could not make enough on which to live if they did not live very simply. Try to picture a single street or road, along both sides of which, for almost a mile, there are one-story, wooden houses, without chimneys, and roofed in most cases with thatch. Though some of the houses are painted black, many are unpainted, gray, and weatherworn. In just such villages live hundreds of thousands of Japanese farmers. Few farmers live on their farms, for good farmland is too precious to be so used.

Most of the homes of Japan cost relatively little, but are well suited to needs. Beams of wood form the simple framework of a house. The outside walls of one or two sides are wooden shutters or panels which can be removed (Fig. 157), and the inside walls are sliding screens of paper. With little difficulty, several rooms may be made into one, and the whole side of the house can be opened to admit air and sunshine. Forests are abundant in Japan, wood and paper are cheap, and low, light-weight structures which sway somewhat as the ground trembles, stand well the earthquake shocks which are frequent there. The heavy, sloping roofs which project over the sides of a house (Fig. 157) not only shed rain but also afford protection from summer sun, keep in some of the warmth from the charcoal fires in winter, and make the houses more secure against strong winds. There are no cellars, and the lower floors are raised about a foot above the ground to keep them dry. In winter, such houses would seem uncomfortably cold to people accustomed to the highly heated houses of northern United States. In Hokkaido, where winters are more severe than farther south, many of the houses of farmers and fishermen are built solidly of logs and have somewhat the appearance of pioneer homes in Wisconsin a century ago.

There is little furniture in a Japanese house. The floors are covered with thick mats of rice straw, each commonly three by six feet in size. In order to keep these mats clean, the people take off their shoes before they enter their houses. They sit on these mats as they read, eat, or rest, and sleep on them at night.

The food of most Japanese consists chiefly of rice, fish, vegetables, and tea, and is much the same day after day. Clothing, too, is very simple. Farm implements are few and inexpensive. Do you see that the more simply people live, the more of them a given amount of land will support?

Answers. — If you write in a column the last seven paragraph headings, you will have a list of seven ways in which the Japanese have been able to make their small amount

By courtesy of Wellington D. Jones

Figure 158

of farmland support so many people (Question [3], p. 166).

How Japan Has Grown Great

Some bases of success. — Ability to work hard and to live simply helped the Japanese in other lines as well as in farming. You know, however, that their success depended much upon having something with which to work. You have seen how they made use of farmlands and fish. As you study further, find all the other facts you can which will help you to explain how Japan has come to be so important among the countries of the world.

Forest facts. — Almost half of Japan is covered with forests. What have you learned about the country that helps to explain this (Figs. 147, 150, and 151)? Because the forests have supplied for so long the chief fuel and building materials in the islands, as well as material for various handicrafts and manufactures, the present stand of timber there seems almost as remarkable as the fertility of the rice lands that have been used for centuries.

Though by no means all Japanese forest lands have been well cared for, wise use has been made of many of them, especially of those owned by the government. Some of these, known as "protection forests," are maintained where they help to prevent floods, destruction by winds, or soil erosion (the washing away of soils). Had the forests been cut from such places, many farmlands would have been ruined. Moreover, trees have been planted on thousands of acres. A Japanese conifer called "cryptomeria" is the tree most commonly planted. More than a third of the timber cut in Japan is cryptomeria. Near Kyoto (Fig. 147), planted forests of bamboo yield valuable crops annually.

In recent years, mills have been built for making wood pulp, an industry which centers in Hokkaido, and for the manufacture of "European paper." Figure 158 is a scene at a sawmill in Hokkaido. Many scenes in this northern island recall some of those in northern Michigan, Wisconsin, and Minnesota.

Mountains poor in minerals. — Minerals, though found in many mountainous lands, are not abundant in Japan. Copper, the leading ore, has been mined at many places and for many centuries. Ores of gold, silver, lead, zinc, iron, and a few other metals also are produced there, but in small amounts. In some recent years, Japan has not been self-supporting even in the case of copper.

By far the most valuable product of Japanese mines is not an ore, but *coal*. Indeed, the coal mined in Japan is worth about as much as all the metals put together. The amount seems small, nevertheless, when compared with that mined in Britain. Japanese coal, furthermore, is poorer in quality than the better grades of British coal. The picture in Figure 159 shows women in Hokkaido filling sacks with coal. Almost a third of the coal mined in Japan comes from that island, and about two-thirds come from northern Kyushu. There is almost none in Honshu, the main island. Without its coal, Japan would have found progress much more difficult than it has been.

The development of manufacturing. — During the period when Japan was shut off from other lands, many Japanese became skilled in handicrafts for which the natural

Figure 159 *By courtesy of Wellington D. Jones*

resources of the islands furnished materials. Some of them, for example, became skillful weavers of silk. The forests which cover so many of the rainy mountain slopes supplied abundant wood, and some districts furnished clay suitable for making china and tiles. The sap of the lacquer trees was useful in making a varnish with which to decorate bowls, boxes, and vases, and much paper was made from the wood of the "paper mulberry." Rushes which grew in many districts, especially those bordering the Inland Sea (Fig. 147), afforded material for mattings, trays, and baskets, and copper wares were common. Just as the Japanese learned to live upon the food which they could make their farmlands supply, or which they could win from the sea, so they learned to make their houses, their house furnishings, their clothes, their boats, and their vehicles from materials obtained in their islands. All their handicrafts were carried on in homes or little shops, without the aid of modern machinery.

Soon after the "awakening," the Japanese government sent men abroad to study factories in other lands. Later, model factories were built, and schools were established, where Japanese workers could learn how to use machinery. The Japanese studied the kinds of factory goods demanded in other countries, and found that changes must be made in many Japanese products before there could be much sale for them abroad. For example, china cups which the Japanese used were not shaped like those to which Americans and Europeans were accustomed. They saw, too, that in southern and eastern Asia, the nearest trading regions, cotton cloth was one of the greater needs. Japan had little cotton, but much was raised in some parts of Asia and in the United States. In view of the coal to be had in their own islands, the great market for cotton goods near at hand, and the many Japanese already skilled in spinning and weaving and accustomed to low wages, cotton yarn and cloth mills were established in several cities. These ventures succeeded well, and the spinning and weaving of cotton have become the most important manufacturing work of the country.

The chief manufacturing city. — Osaka (Fig. 147) is the chief cotton-manufacturing city. It already had become a great "home manufacturing" city at the beginning of Japan's modern period. Trade between various parts of Honshu, Kyushu, and Shikoku had centered there, and many artisans were needed to supply the wants of the traders. Osaka's early start in "manufacturing" and its favorable location for carrying on trade with Asia help to explain why it has become Japan's "cottonopolis."

Other factories. — Kyoto (Fig. 147), the old capital of Japan, is as famous for its silks as Osaka is for its cottons. The silk mills shown in Figure 160 are in a silk-producing district southwest of Tokyo. Do they not recall to you the silk mills near Lyon (Fig. 67)? Japan has many factories which are more interesting to visit than its textile mills, but the combined products of all the others probably do not equal in value the textile products. About half of all Japan's factory workers are employed in textile mills. No other kind of manufacturing there employs half as many people. Among the newer industries, those producing steel, tools,

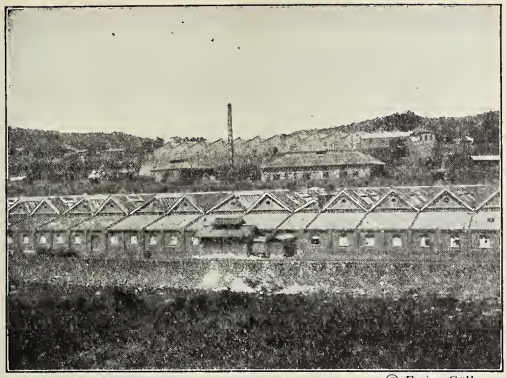


Figure 160 © Ewing Galloway

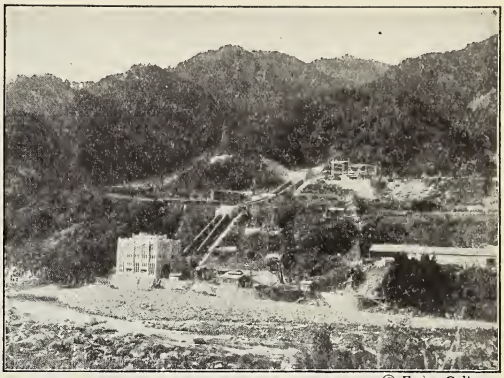


Figure 161 © Ewing Galloway

machinery, and ships are of chief importance. Japan, however, has not been able to make enough steel and machinery for its own use, and imports both. Scarcity of iron ore has been a great handicap to the country. The making of china is one of the more interesting of the older industries. This work centers in and about Nagoya (Fig. 147). It is done in part in factories, but much of it, especially the decorating of the china, still is done in homes. Altogether, the number of factory workers in Japan still is small, as compared with the number of farmers.

White coal. — The picture in Figure 161 suggests one of Japan's great resources. In recent years the hydroelectric industry has made more rapid progress there than any other. How do the maps in Figures 147, 150, and 151 help you to explain why Japan has much water power? Tell why you should expect to find, however, *many* water power sites where power can be developed in *small* amounts, rather than a *few* places where, as at Niagara Falls, *great* amounts can be produced.

The power sites in Honshu are most numerous on the western slope of the mountains. Like most of the coal fields, then, many power sites in Japan are not near the chief population centers. However, power is now carried long distances from its source, and already it has been transmitted to many factories in Japan for use in manufacturing. Japan has much more water power than has Britain, and it has copper to use in electrical industries. Water power probably will be a great aid in the further development of manufacturing in Japan.

Tokyo. — The river near whose mouth Tokyo grew is one of the few rivers in Japan which are navigable for more than a few miles for river boats. In early days, this river and its branches, together with the canals which were dug with little difficulty across the lowlands there, furnished routes over which produce could be collected at Tokyo. Small coastwise vessels also could convey wares to and from the city. For goods brought to it by coasting vessels, it was a gateway city, not only to the plain in which it stood, but also to many parts of the highlands that border the plain. Chiefly for this reason, the "shogun," one of Japan's rulers, chose it for his home city early in the seventeenth century. Soon after Commodore Perry's visit, the emperor came to live in Tokyo. Though its river harbor was not deep enough to admit large vessels, its location near the north-south center of the country, at the meeting place of many routes, is a good one for a capital. As in other capitals you have seen, many people were needed for government work, and many others were needed to supply

Figure 162 *By courtesy of Wellington D. Jones*

the wants of the government employees. Like other capitals, too, it became a center of art and learning.

Tokyo is a city of hundreds of bridges and of many canals, such as the one in Figure 162. Its business center is west of the river, while the factory district is east of it. Modern stores, banks, and hotels are to be seen along the main streets of the business section. The "Bridge of Japan," in the heart of the business district, is said to be the busiest spot in the islands. Man-pulled vehicles called "jinrickshas" weave in and out among bicycles, ox carts, horse carts, automobiles, and street cars. Laborers with bare legs and little clothing mingle with Japanese in European dress, with others wearing native kimonos and sashes, and with foreigners from various lands.

On the west, hilly land rims the lowlands near the river. In this western part of the city is the emperor's palace, secluded in spacious grounds and almost concealed by pines and cherry trees. There, too, are found the government buildings, offices of foreign consuls, army barracks, schools, and residence districts.

In addition to its broad, new, well-paved streets, there are, however, hundreds of miles of winding streets in Tokyo, each less than eighteen feet wide. Many are without sidewalks, and are bordered by open-faced Japanese shops or by rows of tiny houses much like those of the villages. In some of the shops, one sees at work the makers of "getas," or wooden clogs, which serve many Japanese as rubbers do us. In others, one may watch men cutting, pasting, and painting Japanese lanterns, fans, or parasols. Silk weavers may be seen at their looms in little weaving shops. Through the streets go vendors of fish, vegetables, flowers, sweetened rice cakes, and other wares. Tokyo is an interesting mixture of things "western" in appearance and of temples, homes, and shops such as can be found only in the Far East.

Figure 163 *By courtesy of Wellington D. Jones*

Among the varied products of Tokyo's growing factory district are woolen and cotton goods, machinery, flour, refined sugar, paper and rubber goods, soap, toys, strawbraid, glass, and chemicals. Improvements now are being made in the harbor of the city which will make it possible for large boats to enter. In spite of its growing manufactures and commerce, however, Tokyo is, above all else, the proud capital of the empire.

From season to season its charm changes. Plums blossom there in chilly March, the cherries bloom in April, the lotus flowers in August. In November, maples and chrysanthemums are in their glory, and in December, streets hum with the noise of fairs and busy preparations for New Year's fêtes. At all seasons, it is a capital of many interests and delights.

Two "young" ports. — Both Yokohama and Kobe (Fig. 147) were mere fishing villages when Commodore Perry visited Japan. Both had harbors, however, that could accommodate large ocean-going vessels, and, as foreign trade developed, Yokohama grew rapidly into a port which served Tokyo and the densely settled lowland in which it lies, while Kobe served the Osaka district. In Figure 163, you see a part of the harbor of Kobe. As you should expect, raw cotton and cotton goods are handled at Kobe in large quantities. Kobe and Osaka are, in a way, the "Liverpool" and "Manchester" of Japan. Yokohama, on the other hand, is the "Queen of Silk Sellers," for most of the raw silk exported from Japan is sent from there. When American trading ships first went to Japan silk was among the products sought, and it was collected at Yokohama for export. The chief silk-producing district was near-by, and no other Japanese port was better situated for trade with America. The silk that was collected, however, was of many different kinds and differed greatly in quality and condition. It was natural that a "conditioning house," at which silk was weighed, tested, and sorted, should be built at the port to which most silk came. The fact that the conditioning house was built there, in turn helped to center the silk trade in Yokohama.

Just as there came to be in Liverpool many firms, banks, and other business concerns engaged in various ways in buying and selling cotton and cotton goods, so in Yokohama there came to be many people and firms skilled in various ways in buying and selling silk. Now, Kobe and Yokohama are important manufacturing centers, as well as great ports. As the harbors of Osaka and Tokyo are improved, their foreign trade will increase. Doubtless all four cities will grow in importance both as commercial and manufacturing centers.

Some advantages for trade. — What great advantage has Japan over European and American lands for trade with eastern Asia (p. 163)? Judging from location alone, with which continent might you expect Japan to have the largest trade?

About nine-tenths of the foreign trade of Japan are carried on through the ports of Yokohama, Kobe, and Osaka. The other tenth is divided among several lesser ports. Have the three great ports developed near the seaward ends of peninsulas, or on the inner shores of seas or bays which extend far inland (Fig. 147)? Is this what you should expect? Tell why (p. 38). What difference do you see between the southeastern coast line of Honshu and its northeastern and western coasts? What reason does your answer suggest for the fact

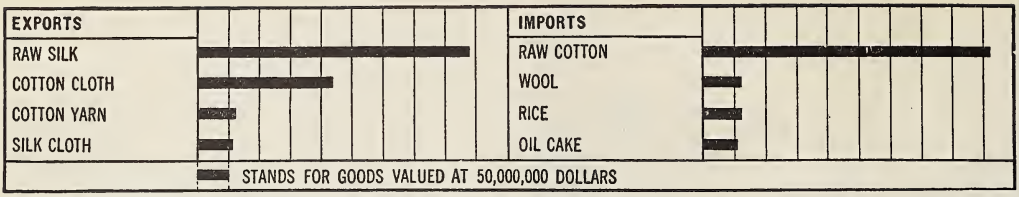


Figure 164. Value, in a recent year, of the most important four exports and the most important four imports of Japan

that all three of Japan's great ports are along the southeastern coast?

At first thought it seems strange that no one of these ports is on the coast of the Japan Sea (Fig. 147). Notice, however, the shape of Honshu. Does the southeastern coast lie more nearly along a north-south line, or an east-west one? Find, on the southeastern coast of the Japan Sea, a place due north of Kobe. Would this place be any nearer to ports on the coast of China and other lands of southeastern Asia than is Kobe? Do you see that even Yokohama is but little farther from Chinese ports than a port due west of Yokohama on the Japan Sea would be? Moreover, the most irregular part of the coast of Honshu borders its richest, most densely peopled lowlands, so that large boats can come far into them to bring or get products. Is it not also fortunate for the development of trade that this irregular part of the coast is one which can be reached conveniently from both the Pacific Ocean and the China Sea (Fig. 147)?

Articles of trade. — 1. From what you have learned of Japan's farms and factories, name the imports and exports which you should expect to find important. Give reasons why you should expect each one to be important. In so far as you can, check the items you named with the facts shown by the graph in Figure 164.

2. Why is it not strange that Japan, though chiefly an agricultural country, imports mostly raw materials and exports for the most part manufactured, or partly manufactured, goods? A very large part of the raw silk which Japan exports is shipped to the United States. What have you learned (*United States and Canada*, p. 236) which helps you to explain this fact?

Gaining more room and more resources. — The Japanese are an ambitious people. They would like to have more farmlands, more coal, and especially more iron, in order to keep their commerce and their manufactures growing rapidly. By war, they have gained some colonies to which they sell products and from which native peoples and Japanese settlers send food and factory materials to the home islands. The more important of these possessions are Chosen (Korea), Taiwan, and southern Sakhalin. Find these parts of the Japanese Empire on the map in Figure 147. From what the maps in Figures 7, 147, 150, and 151 show you about these three lands, decide which one is described in the first of the following paragraphs, which in the second, and which in the third.

1. It is a land of tropical plains and mountains, palms and pines, farms and forests. Rice paddies, tea plantations, fields of sugar cane, and camphor stills in the forests suggest the chief products. Two crops of rice are raised yearly on the same ground. In this home of the famous "Oolong tea," tea leaves are picked four times a year. Camphor trees grow wild in forests on the mountain slopes, and a single tree may yield more than five thousand dollars' worth of camphor. The tree is felled, wood from it is chipped into small pieces, and the camphor is then distilled from the bits of wood over boiling water. The crystals and oil so produced commonly are packed in tin containers and carried on the backs of men down to the nearest railroad, to be sent to refineries in the port cities or in Japan. About half the camphor of the world comes from this island, and plantations of camphor trees have been started to help meet the demand.

2. Fishing is by far the most important industry of the colony. Winters there are colder and longer than those of Hokkaido, but in the southern part oats, rye, and beans are raised, and farmers rear some stock. This land is sparsely peopled, probably chiefly because it is not very attractive to Japanese farmers accustomed to lands farther south. Forests of the district have trees suitable for use in making lumber, but at present little logging is done. Railroads are few, and it would be difficult to transport logs to coastal points for shipment by boat. Pulp mills, however, have been started recently.

3. The colony has many resources, but also very many people. Japan faces there the difficulty of governing millions of alien people who have been accustomed to having a ruler of their own. Rice is the most important crop, and there is a surplus

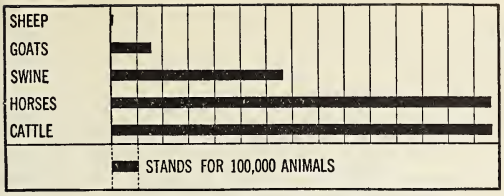


Figure 165. Farm animals in Japan

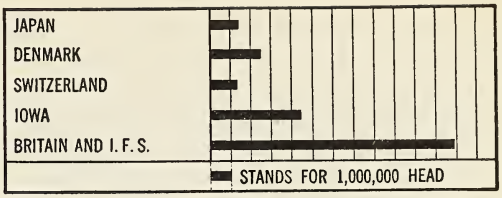


Figure 166. Cattle in various countries

of it for export to Japan. Beans and peas grown on the northern, colder lands also are exported. Cotton and hides from the colony help to supply factories in Japan Proper, the mining of gold is important, and about half the iron ore used in Japan is mined there. The people of the colony, on the other hand, buy much cotton cloth made in Japan.

Can you not see, even from these brief descriptions, how the further development of these colonies may engage many Japanese, increase the trade of the country, and in various ways add to the importance of Japan?

Summary Exercises

Answering questions. — 1. What reasons have you now found for the importance of agriculture in Japan? What reasons have you found why grain farming is more important than stock farming there? Why manufacturing and trade are of less importance in Japan than in Britain? Why Japan's progress has been so rapid in the last half century?

2. What likenesses between Japan and Britain can you now state? What differences?

Relationships. — 1. The importance of agriculture in Japan — dense population, no foreign commerce for about two centuries, need for much food ⟶ numerous lowland districts; abundant rainfall; long growing season, permitting rice to ripen in many parts of the country; many highland tracts suitable for growing mulberry trees and tea.

Do you see how the preceding paragraph indicates that the importance of agriculture in Japan is related to the human items named between the dash and the arrow, as well as to the natural conditions or facts named after the arrow?

2. Write paragraphs suggesting other geographic relationships which you have discovered in your study of Japan.

Graph study. — What facts which are new to you about the raising of stock in Japan are shown by the graph in Figure 165? What striking fact about farming in Japan do the graphs in Figures 165 and 166 illustrate?

Copy the following sentences, filling in the blanks from a study of the graphs in Figures 165 and 166. In Japan, there are about ten times as many goats as sheep, more than —— times as many swine as goats, and more than —— times as many horses as swine, while cattle number about the same as horses. However, the total number of cattle in the country is only about one and a half million, while those of Denmark (little more than one-ninth as large as Japan) number about —— and —— —— millions. Switzerland (even smaller than Denmark) has about —— and —— —— million cattle, Iowa (not much more than a third the size of Japan) more than —— and —— —— millions, and Britain and the Irish Free State, almost —— millions.

Things to explain. — 1. Nagasaki has the largest shipbuilding yard in Japan. Nagasaki is the chief port for Japanese steam trawlers which are used in the seas between Japan and the mainland. Nagasaki is an important coaling station for ships.

What fact have you learned about northern Kyushu (p. 175) which helps to explain these statements? What can you find from the map in Figure 147 which helps further to explain them?

2. A traveler in central Honshu wrote the following brief description of a mountain valley there. "In this out-of-the-way mountain valley, where the highways are mere trails, most of the farmhouses have two stories, and many of them are roofed with tile instead of with thatch. There is an air of general prosperity in the valley, and little evidence of the poverty which one might expect to find widespread among farmers in such a district. Ventilators in the roofs of the houses, numerous trays and mats spread near the houses to dry in the sunshine, and many mulberry trees, suggest the work which largely accounts for the fairly prosperous condition of most of the farmers."

To what work do you think the traveler referred? How does this work help to explain the rather prosperous condition of many farmers in the district? Why is such work suited to such a locality?

3. How many cities with more than 100,000 people are there in Japan (Fig. 147)? Notice their distribution. What reasons can you give for it?

Some map questions. — 1. Find China on the map in Figure 147, and notice the main divisions of the country that are shown there. You may think of the unnamed division in the southeastern part of the country as China Proper. With the aid of this map, find China on the map in Figure 7. What question about China does the population map at once suggest? By comparing the two maps, decide in which of the main divisions of China most of the people live.

2. Does the map in Figure 147 suggest to you any reasons why the population of China is distributed so unevenly? Why most of the people live in China Proper? If so, what are they?

3. Find China on the maps in Figures 150 and 151. Do these maps, taken together, suggest any further reason why the density of population varies so greatly in different parts of China? Why most of the people live in China Proper?

4. China Proper and Manchuria, as you now should expect, are the great farming divisions of the country. In which part of the year, the colder or the warmer, does most rain fall in them? If most of the rain fell in the other part of the year, do you think as many people could earn a living by farming there as can do so now? Do you think, then, that the summer rains may help to explain the comparatively dense population of the lowlands of China Proper and Manchuria?

5. About what is the latitude of the southernmost part of the boundary of China (Fig. 147)? The northernmost part? Through about how many degrees of latitude, then, does the country extend? Would you expect much or little difference between the lengths of the growing seasons in Manchuria and southern China Proper? In the kinds of crops grown? Do you think the fact that many kinds of crops are grown and the fact that on the lowlands at the south crops are grown throughout the year may help to explain the dense population?

6. In which of the main divisions of China should you expect to find most of its great cities? Why? How many cities with more than 100,000 people each can you count in China Proper on the map in Figure 147? In Manchuria? Mongolia? Sinkiang? Tibet? Is what you had expected true?

7. Would you expect to find that commerce and manufacturing are highly developed in China Proper, or not, judging by the number of its great cities and the dense population of its lowlands?

8. In which of the divisions of China would you expect to find most railroads? Is what you expected true (Fig. 147)? Although the map shows only the "principal railroads," there is only a little mileage not shown in China Proper and Manchuria and there are *no* railroads in Mongolia, Sinkiang, or Tibet. Does the fewness of the railroads in China Proper strengthen the expectation which you had about commerce and manufacturing there, or not?

Directions for reading. — 1. Check your answers to the questions you have just studied.

2. As you read about China Proper, list all the ways you can in which conditions there seem to you to resemble conditions in Japan. Make another list of ways in which conditions differ.

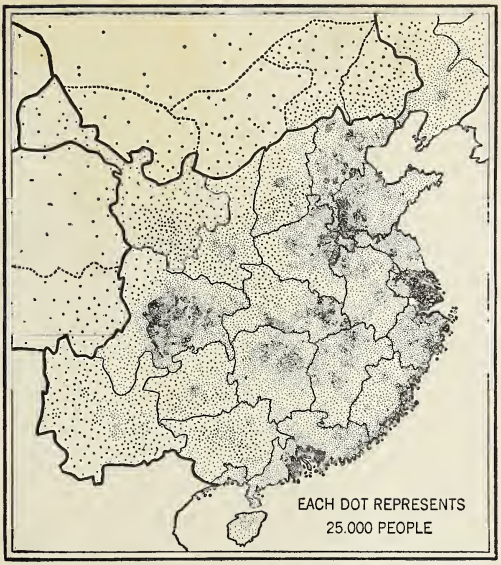
3. As you read about the different parts of China, look for connections between *man and his work*, on the one hand, and *climate* (*wind*, *rain*, and *temperature*), on the other.

4. Notice ways in which China seems to be a backward country, and the possibilities for better uses of lands and other resources.

China Proper

A word about the use of a name. — China Proper commonly is called simply China. As you already have seen, it contains the great majority of the people of all China. For this reason and others, it is by far the most important part of the Chinese Republic. It is quite natural, then, that the name of the entire country should have been applied to its greatest part. In the following discussion, the name China is used in the ordinary way; do not forget that by it China Proper is meant.

Distribution of people. — The population of China is thought to be about 400,000,000, — more than one-fifth the population of the world. The dot map in Figure 167 shows more clearly and with greater accuracy than the population map you already have studied the very uneven distribution of this vast population. Notice that *each* dot on it represents *25,000* persons. In general, the plains



After the China Continuation Committee

Figure 167. Distribution of population

and valleys, with their deeper and richer soils and their more nearly flat surfaces, are settled much more densely than the highlands. By comparing the maps in Figures 147 and 167 you will see, however, that even on the Great Plain of China the density varies much.

By using the two maps just referred to, find the crowded lands of the Si Kiang and Yangtse Kiang deltas; here the density of population reaches one thousand or more to the square mile. This is about twice the density of population in Rhode Island, the most thickly peopled state of the United States. Find the large, irregularly shaped area of very dense population in the interior, northwest of that near the mouth of the Yangtse. Here, too, rich lowland soils support about one thousand people to each square mile. Notice that between the last two crowded areas mentioned, the population is very much less dense; here there are large marshy areas, poorly drained and liable to flood, as well as some infertile, sandy tracts. As you will see by again examining the maps in Figures 147 and 167, the population near the mouth of the Hwang Ho is far less dense than that near the mouths of the other two great rivers, and no large city stands on its lower banks. In places there are sandy, infertile soils, deposited by the river in past times as it shifted its course on the almost flat flood plains. Most of the time shallow, and its channel choked with silt, the river is subject to high floods. It is therefore navigated but little, and no important city has grown along its lower course. There are, you see, good reasons why the density of population on the plains is far from uniform. The larger inland areas of comparatively dense population in central China are chiefly in lowlands or basins drained by the Yangtse or some of its tributaries (Figs. 147 and 167). Even the highest, the westernmost, of them is in a basin plain, surrounded by higher lands which, in places, contain few people. In the mountains, population is densest, of course, in the valleys.

Some parts of China, then, are very thickly peopled, while others are thinly settled. The areas of highest density form only a small fraction of the total area. They are the more fertile parts of the plains.

A land of farmers. — You have seen that in the United States and western Europe most of the people of the more thickly settled areas depend for a living on commerce and manufacturing. In China, on the other hand, four-fifths or more of the people depend upon farming. Foreign commerce and factory industries are little developed as compared to agriculture. Had you not already studied Japan, these facts doubtless would lead you at once to wonder how so many people, particularly in the crowded areas, can wrest a living from the soil, and why commerce and manufacturing are not more important. As it is, you may wonder especially whether the reasons for conditions in China are like those in Japan, or not. The following paragraphs will help you to answer these questions.

Looking backward. — The Chinese are taught to honor and worship their ancestors, a

practice which helps to explain much in Chinese life. For example, sons are loath to leave the localities where their ancestors dwelt, even though these may be overcrowded, for much of the ancestral worship takes place at the family graves or in ancestral halls. Only in recent decades, for example, has there been an active movement of people to the unfilled farmlands of Manchuria. Again, so great is the influence of the past that, in general, ways of living and of working are changed only with great difficulty. Centuries ago the lives of the Chinese peasants became adjusted to the land in certain ways, perhaps in those days the best. To-day the people are averse to change. They prefer to follow the methods of their ancestors, for to change their methods might be interpreted by the spirits of their ancestors as a sign of disrespect. Consequently Chinese life has continued along ancient lines through centuries. Thus far, most of the teeming millions of China have not been affected by modern discoveries and inventions made in more progressive countries.

Barriers of land and sea. — For many centuries the Chinese had very little contact with the outside world. This was due partly to the character of the bordering lands and to the vast ocean to the east of China. What did the map in Figure 147 show you about the height of the lands to the west? About the extent of the plateaus and mountains there? What did the maps in Figures 150 and 151 show you about the climate of these lands? What is the character of the land which borders China on the south (Fig. 147)? Only upon the northwest and at the north, toward Manchuria, were the natural defences of the Chinese not strong. Occasionally the wandering people of the dry grasslands of Mongolia suffered from lack of food for their animals, and so for themselves. Driven by hunger, they at times invaded the Great Plain of China, and established themselves there as conquerors and rulers. Through many centuries, the great ocean which borders China upon the east was even more effective in keeping foreigners away than were the landward barriers at the south and west. Not until the sixteenth century did the first visitors from western Europe come to China by sea. Not until the invention and use of steamships had greatly shortened the length of sea voyages, did the ocean cease to help in isolating China.

For a long time it was a great advantage to the Chinese to be shut away to such an extent from other peoples. Protected from attack except from the north and northwest, they had become a highly civilized agricultural people while our ancestors in Europe still were barbarians. But in time their isolation became a serious disadvantage. Nations, like individuals, learn from one another by exchanging ideas and materials. The Chinese, partly because of their isolation, partly because of their deep-rooted habit of following the ways of their own past, have learned comparatively little from other peoples, even though in later days various nations have secured footholds in China.

Foreign nations in China. — Since sea traders from Europe reached China by sailing around the southern end of Africa, crossing the Indian Ocean, and passing through the Strait of Malacca (Fig. 147), it was naturally with the people of the southeastern coast that they first attempted to trade. First there and later elsewhere along the coast certain European nations secured possession of more or less valuable harbors. Almost a century ago, for example, China was forced to give up to Britain the important island of Hongkong (Fig. 147). From time to time, too, China has agreed that in certain cities, most of them ports, foreigners may live and do business.

China has been called the "greatest undeveloped market" in the world. The great trade which might be built up there, the rich deposits of coal, iron ore, and other minerals

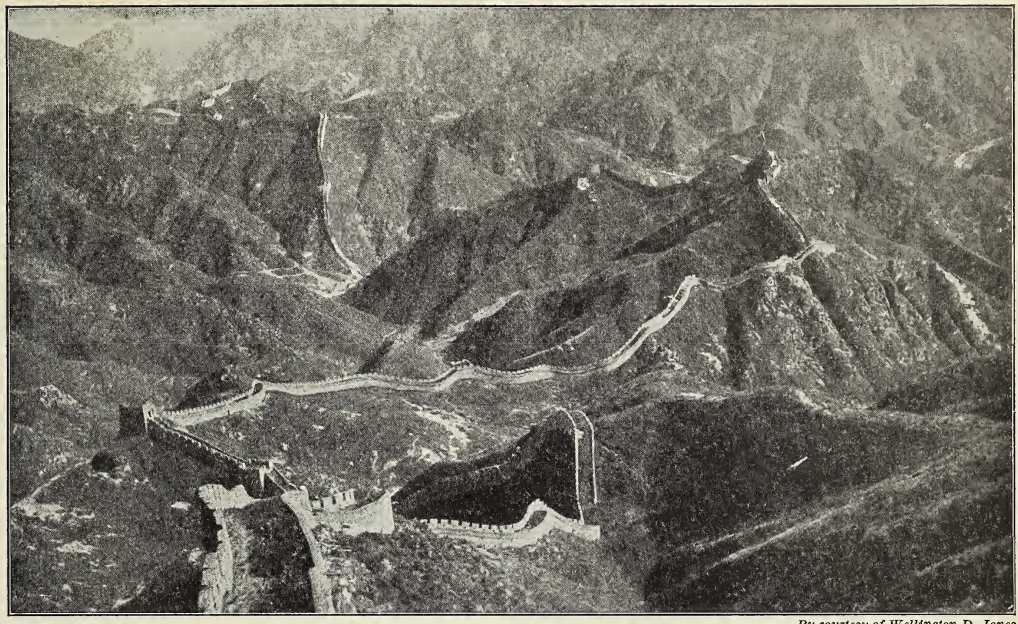


Figure 168

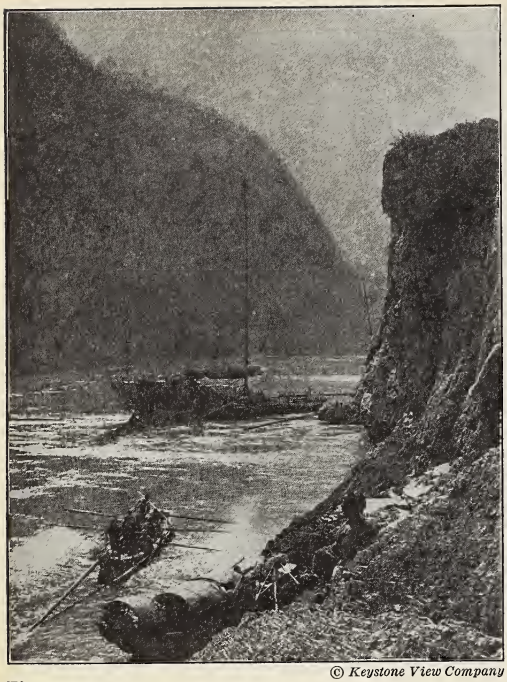
By courtesy of Wellington D. Jones

awaiting use, and the great need for railroads which might be built by foreign capital with profit, suggest the sorts of things which have led certain foreign nations to undertake the "penetration" of China. At times it has seemed to the Chinese that they were destined, little by little, to lose control of their own country, and as late as 1900 they made a violent but unsuccessful effort to break all connections with the outside world. Perhaps in recent years no other nation has been so anxious as the Japanese to play a leading part in the "opening up" of China. What have you learned about Japan that helps to explain this? As you read further, look for statements about the activities of Japanese in China.

The records of ages. — Although China is the home of a very old civilization, you would not find there as many ancient landmarks as might be expected. This is partly because most of the works of man there have not been made with materials of enduring kinds. There remain, however, some world famous landmarks that were built by the Chinese centuries ago. Two of them are the Great Wall and the Grand Canal. Find them on the map in Figure 147.

The Great Wall, a section of which is shown in Figure 168, was built to help protect China from further invasions by barbarians. It was constructed along the one land frontier where, as you have seen (p. 184), the natural defences of the Chinese were in places not strong. For long distances it followed along or near the boundary between the agricultural lands and the grasslands. Counting all of its spurs and loops, it is more than two thousand five hundred miles long. The Great Wall is a monument to the industry and patient persistence of the Chinese, and to the long and bitter strife between the tillers of the soil and the fierce nomads of the grasslands.

The Grand Canal was dug to provide a highway between the southern and northern ends of the Great Plain of China. It extends from Hangchow in the south to Tientsin in the north (Fig. 147), with a branch from the lat-



© Keystone View Company

Figure 169

ter city to Peiping. It is about six hundred fifty miles long, and varies in width from thirty to seventy feet. The northern part of the canal is now little used, partly because Peiping is served by several railroads (Fig. 147).

Other waterways. — The famous Grand Canal is only one of thousands of canals, big and little, which in the course of centuries have been dug on the plains of China. They are estimated to have a combined length nine times as great as the distance around the earth at the equator. No other country has such a network of man-made waterways. Most of them were dug for drainage, or irrigation, or both, but all the larger ones serve also as highways and many of them are thronged with boats. In some districts, these canals are almost the only highways.

Many of the rivers of central and southern China are busy highways of trade, but the greatest of them, by far, is the Yangtse. Find Hankow on the map in Figure 147. Ocean steamers can ascend the muddy waters of the Yangtse for almost six hundred miles to this city, where the mighty river is still more than a mile wide. Small steamers navigate the river some four hundred miles farther, beyond the famous Yangtse Gorges, and Chinese junks go up many miles more to trade with the people of the westernmost of the very densely settled areas of China (Fig. 167). The up-river trip through the gorges, where the river flows swiftly in a series of foaming rapids, as shown in Figure 169, is difficult and not without danger. In places junks are dragged by "trackers" on shore, as many as one hundred fifty of them to a large junk, tugging at the ends of long ropes.

Roads and their use. — Some roads have been improved in recent years in the vicinity of certain large cities, but for the most part the roads of China still are wretchedly poor. Most of them are so narrow as to be mere paths, and are very crooked as well. Most of the streams and larger canals are not bridged, and, if not fordable, they are crossed by means of ferry boats. Often there is much delay and inconvenience at a busy ferry. Figure 170 shows a ferry on a small river; the path in the foreground is said to be "a main road."

Two kinds of vehicles much used in China since ancient times may be seen in Figures 171 and 172. The road in Figure 171 is one of the better country highways, near Peiping. The street in Figure 172 is a main thoroughfare in one of the smaller cities of northern China. The wheelbarrow, often both pulled and pushed, as in the case of those in Figure 171, is well suited to the rough, narrow, winding paths which are common, and is in use almost everywhere. The carts are heavy, springless, and strong. The saying is that since the Chinese could not make good roads they made unbreakable carts. Carts are confined to the North, the section where people are most dependent on roads and land carriage and where there are most draft animals. In

Figure 170

© Ewing Galloway

Figure 171

By courtesy of Wellington D. Jones

Figure 172

From MacTavish and Lehman

central and southern China, there are more navigable streams and canals. Many goods moved by land there are carried by men. Even though labor is plentiful and wages are low, land transportation in China by the methods chiefly used is far more expensive than railroad transportation.

By courtesy of Wellington D. Jones

Figure 173

Railroads. — There are only about seven thousand miles of railroad in operation in China, and the more important of these railroads were opened since 1900. To each mile of railroad, there are about two hundred seventy square miles of territory; in Japan, there are only eighteen. In China, there are more than fifty-seven thousand people to each mile of railroad; in Japan, about seven thousand. The short railroad mileage of China, in comparison to its size and population, is a very striking sign of the backwardness of the country. Lack of railroads there has tremendously retarded development along many lines, and almost all progress waits on railroad building.

Notice on the map in Figure 147 that the principal railroads already built extend, in a general way, north and south. What advantages, if any, do you see in this? When the road between Hankow and Canton is completed, the three great river basins of northern, central, and southern China, the Hwang Ho, the Yangtse Kiang, and the Si Kiang, will be connected by rail. Peiping, the metropolis of the North, will then be connected with both Shanghai and Canton, the largest two cities of China.

Notice that for much of the distance between Peiping and the Hwang Ho, one of the railroads runs near the eastern edge of the North China Highlands, and that a branch of the main road extends west into the highlands. The branch road was built to reach coal beds whose edges are exposed on valley sides. Sooner or later, other branches doubtless will be built into the plateau for the same purpose. Until a network of railroads is provided, coal will be scarce in most parts of the country. At what large city does this main road from Peiping reach the Yangtse? Together with the two large cities near it, Hankow forms the most important commercial and manufacturing center of interior China.

What considerations do you think determined the general course of the railroad between Peiping and Mukden (Fig. 147)? It passes along a lowland whose population is comparatively dense (Fig. 7).

Villages and houses. — Although China has a population nearly four times as large as that of the United States, it has some seventeen fewer cities having more than 100,000 people each. In this country, more than half the people live in places having *more than* 2500 people each; in China, about three-fourths of the total population live in villages and hamlets each of which has *less than* 2500 people. China, as you have seen, is a land of farmers. Instead of living on scattered homesteads, however, as do most American farmers, most of the farmers of China live in villages or hamlets. There are estimated to be in China at least 100,000 farm villages (250 to 2500 people each), and 1,000,000 farm hamlets (fewer than 250 people each). Over vast tracts, villages and hamlets are only a quarter of a mile to two or three miles apart. Around them are the tilled lands.

A Chinese village or hamlet is not laid out according to any definite plan. It has a street, perhaps a network of streets, but in most cases they are both narrow and crooked. At right angles to the main street or streets, as the case may be, there may run even narrower alleys, upon which open small yards or courts in which the houses stand. Figure 173 shows part of a village on a tributary of the Yangtse.

In some of the highlands where stone is abundant, the people live in stone houses. In parts of the North China Highlands, they live in caves dug into the sides of valleys under their upland fields. The material *most* used for building houses in China is brick, for

Figure 174 *By courtesy of Wellington D. Jones*

in most sections clay is the building material which is most abundant, nearest at hand, and cheapest. In many cases the clay is simply molded into "adobe bricks," and dried until the bricks cease to shrink. Within a few years after they are built many of the houses begin to show signs of decay. Most of them are gray or bluish-gray in color, have only one story, and are roofed with earth and thatch, or with clay tiles. In many houses, oiled paper, instead of glass, is used for the windows. The floors in the poorer homes are merely the hard-packed earth.

Most houses in northern China are cold in winter, for little fuel is burned. In many of them some heated air is carried in flues from the stove to and under a sleeping platform called a "kang," and then on to the chimney. This divan, or raised bed, is made of adobe bricks. Cooking utensils are made very thin on the bottom, so as to economize fuel. In the corners of a dwelling there may be jars of grain, some farming tools, a loom for weaving cotton, and a spinning wheel, while from the sooty ceiling hang various household articles. A rude bench or two and possibly a few chairs may complete the furnishings of such a comfortless home.

This brief description of Chinese villages and houses should emphasize the scarcity in many sections of timber and fuel, and the poverty of most of the people. The Chinese are a poor nation partly because too many of them depend upon farming, while mining, commerce, and manufacturing are developed but little. Most of the farmers own so little land that they are barely able to eke out a living for their large families, even by practicing the utmost industry and economy.

Economizing space. — Upon every side in the thickly settled sections of China one may see evidences of the attempt to economize land space, and to secure the largest possible returns from the smallest possible areas regardless of the amount of human labor involved. Some of the ways in which these ends are gained were worked out gradually through many centuries, as the population to be fed grew and the need of using the land intensively increased.

In the cities and in the farm hamlets alike, buildings are crowded close together (Figs. 172 and 173). Most streets in China, as well as most roads (p. 186), are very narrow. The people grow for food the crops which give the greatest yields per acre, and wherever possible more than one crop is grown on the same land each year. The soil is prepared most thoroughly for the crops, and they are cultivated with the most painstaking care. Everything that has fertilizing value is saved and applied to the land, for nearly or quite the most important thing in Chinese farming is to maintain the fertility of the soil, so that it may continue indefinitely to produce large yields. In parts of some of the highlands, the less steep slopes are terraced for farming to their tops, as you can see in Figure 174. In most of China, little or no land can be spared for use as pasture or for growing forage crops. As in Japan, therefore, there are few cattle, horses, or sheep. There are, on the other hand, great numbers of pigs, chickens, and ducks. They require little land, and can live largely on food which the people cannot consume. Figure 175 shows a "duck farmer" and his flock on one of the small waterways. Many of the waterways are "farmed" as intensively as the soil itself. Fish and water plants are obtained

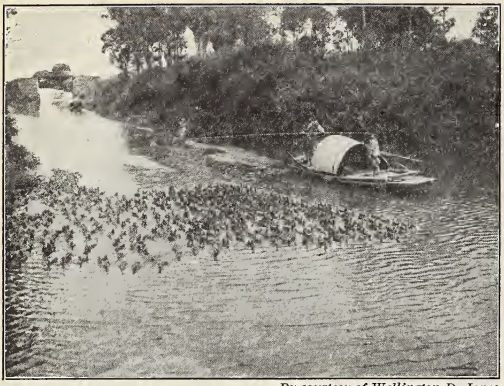


Figure 175 *By courtesy of Wellington D. Jones*

from them for food, and from some of the canals much rich mud is taken to fertilize the fields. In some districts, part of the overflowing population has sought homes on the waters. There people are born, live, and die on the boats which form their floating houses.

Crops and climate. — The most productive use which the farmers can make of their land in different parts of China is connected closely with the climate. In the Si Kiang Valley, near the Tropic of Cancer, crops commonly are grown throughout the year; summers there are hot, and winters are mild. In the northern part of the country, the crops chiefly raised for food grow and ripen quickly; there the summers are comparatively short, but hot, while the winters are long and cold. The climatic conditions to which the crops grown in different parts of China are adjusted are affected not only by latitude, but also, as you should expect, by distance from the sea, the height of the land, and in some cases by position with reference to rain-catching highlands.

Particularly important to agriculture is the position of China on the southeastern border of the huge land mass of Asia. During the winter, winds blow from the west and northwest across the country, from the land to the sea. They are dry winds, coming as they do from the arid or semi-arid interior of the continent (Figs. 150 and 151). They are cool in southeastern China, and cold, often bitterly cold, in northern China. In summer, winds from the ocean, from the southeast and east, blow over China. They bring much moisture from the ocean, and when they are forced to rise in passing over mountains and so are cooled, or when for any other reason their temperature is lowered sufficiently, they give up part of their moisture in the form of rain.

Throughout China, then, there are out-blowing and in-blowing winds, which shift with the seasons. These seasonal winds are called *monsoons*, and the lands of eastern and southern Asia over which they blow sometimes are called the *monsoon lands*. These are lands of *summer rain* and *winter drought* (Figs. 150 and 151), for, as you have just seen, the in-blowing winds from the ocean are moist winds, and the out-blowing winds from the continental interior are dry winds. The rain-fetching winds from the ocean begin to blow earlier and cease to blow later in southern China than in northern China. The southern part of the country therefore has a longer rainy season than the northern part, and it receives much more rain (Fig. 150). The *average annual* rainfall at Hongkong is eighty-four inches, that at Peiping twenty-five inches. The rainy season at Hongkong commonly begins late in March, and ends in October. At Peiping, it usually starts in May and closes in September. Not only does the rainfall decrease, in a general way, from south to north, but also with increasing distance from the sea.

The fact that the summer season, the growing season, is also the rainy season helps to make possible the great population of China. If the rains came in winter, fewer people by far could earn a living by farming.

Floods, droughts, and famines. — The heavy rains of summer are not an unmixed blessing, however. The rivers at that season rise far above their low-water levels of winter. Occasionally some of them overtop their banks, or burst through the great dikes that have been built in an attempt to control them,

Figure 176 *By courtesy of Wellington D. Jones*

flooding large areas and destroying crops, houses, and people. The houses along the river in Figure 173 were built high as a protection against floods.

The Hwang Ho has been the most destructive of China's rivers, and sometimes it is called "China's Sorrow." It brings down to the plain and to the sea great quantities of yellow mud from the bare, forestless highlands along its upper course. Hwang Ho means Yellow River. This mud colors the waters of the sea far from land, hence the name "Yellow Sea." Slowly the deposits of the Hwang Ho are extending the land oceanward. In the same way, in ages past, the deposits of the Hwang Ho and other streams built up the vast, gently sloping plain across which they now flow. Many times the Hwang Ho has shifted its course between the highlands and the sea, building up first one part of the great plain and then another. The river has built up its present bed across the plain until in places it is ten to twenty feet above the surrounding country. If, under these circumstances, the dikes break in times of flood, as they sometimes do, widespread disaster results. Not only do the floods themselves cause great damage, but they are almost certain to be followed by famines.

Famines in China repeatedly have resulted also from prolonged drought. If rain fails to fall as usual in summer, crops wither and die, and people may starve. The danger of famines through drought is greatest in the northern part of the country, as you should expect (p. 190). When their crops fail, there is little or nothing upon which the people can fall back. Most of them have little reserve either of money or food, and without a network of railroads it is difficult away from the river highways to transport large quantities of food long distances.

Forests and floods. — China is "a land of floods" partly because highland forests which once helped to regulate the flow of many of its streams were destroyed. The planting and maintaining of forests on the steeper, cut-over mountain slopes suited to their growth would help to protect the lowlands from floods. This is one of the great tasks confronting China.

Dry-land farming in the North. — In the northern part of the Great Plain of China the staple bread crops of the people are a large millet or grain sorghum called kaoliang (pronounced *kow-li-ang*), and several small millets. In Figure 176 you may see kaoliang and a small millet growing just outside of a farm hamlet near Peiping. These grains have food value similar to that of wheat, they grow and mature quickly, and they have great resistance to drought. They can live without growing for a long time when there is too little water in the soil to permit growth, and then can grow rapidly again after rain falls. Wheat also is an important crop in the North, and many farmers grow some barley. Wheat and barley, as you know, require less moisture than do most grains. Soya beans, sweet potatoes, cabbages and other vegetables, melons, and peanuts all are more or less important crops. The gardens are irrigated, at least during the dry months of the growing season, with water obtained chiefly from wells.

Two or more kinds of crops often may be seen growing in the same field, in alternating rows or pairs of rows. What is this practice called (p. 171)? As the earlier crops

Figure 177 *By courtesy of Wellington D. Jones*

are harvested, the ground they occupied is tilled, fertilized, and planted to crops which will be harvested in the autumn. For example, wheat, planted in the autumn and harvested in June, may be followed by millet and soya beans in alternate rows.

Most of the dry-land farms of the United States are larger than six hundred forty acres, and they are worked by the use of up-to-date farm machinery. Very many of those in northern China contain only two and one-half to three acres, perhaps in several plots, and in most cases they are worked with tools of primitive pattern. Many farmers have only a rude plow, mattocks, hand rakes, hoes, and perhaps a drill for planting. And yet so intensively are these little farms worked that many of them support eight to twelve or more persons each.

Rice farming in the South. — It is said that not an acre of good rice land in China is sacrificed for any other grain. The chief reasons for this are the same as those which make rice so important a crop in Japan. What, then, are they (pp. 168–169)? Rice culture helped to make possible the great population of China, and the density of population in the rice-growing districts has helped in turn to keep it the most important crop there. As you should expect, it is only their painstaking, never-ceasing care of the soil which has made it possible for successive generations of Chinese farmers to raise large crops of rice on the same land through many centuries. Though the home production of rice is very great, much is imported.

In much of northern and western China rice cannot be grown, but it is the great crop in the lower Yangtse Valley and everywhere on the lowlands farther south. In southeastern China the growing season is long and very warm, and the heavy monsoon rains supply the large quantity of water needed to irrigate the rice fields. Irrigated rice grows best in heavy, compact soils, partly because water is held in and on such soils much better than by light, open soils. Much of the lowland soil of southeastern China is well suited to rice.

In a general way, the methods of growing and harvesting rice in China are similar to those practiced in Japan (pp. 169–170). But while Chinese farmers undoubtedly devote quite as much labor to growing rice as do Japanese farmers, thought and study have not been given in China to ways of improving the work and increasing the yields as they have in Japan. In China, rice farming has changed little, if at all, for many centuries. As you might expect, then, the average yields of rice per acre are not so large in China as in Japan. How many things do you see in the picture in Figure 177 which remind you of rice farming in Japan?

In parts of South China two crops of rice are grown on the same land yearly. At least one crop other than rice is grown each year on much of the rice land. Such "off-season" crops are planted in the drained fields in the autumn, after rice is harvested, and are gathered in early spring before the rice is transplanted. Among them are wheat and beans.

North China and South China. — You should now realize clearly that the leading crops and the farm landscapes of North China and South China differ greatly. In North China, both upon the great plain and in the highlands, dry-land grains are the chief food crops grown. In South China, rice, the great wet-land crop, is easily first. In both sec-

tions very intensive farming is practiced, and many different crops are grown. For example, the crops raised in one of the provinces in North China include kaoliang, small millets, wheat, corn, sweet potatoes, peanuts, indigo, hemp, silk, cotton, tobacco, such vegetables as beans and peas, and such fruits as apples and pears. Among the products of one of the provinces of South China are rice, silk, sugar cane, tea, bamboo, reed straw, wheat, ginger, vegetables, and oranges. Certain crops are grown in both North China and South China. This is true, for example, of wheat (Fig. 26), as you have seen. But whereas wheat is one of the leading crops in the drier North (p. 191), it is a crop of secondary importance in the South, being grown there chiefly on higher land or as a winter crop on some of the rice lands (p. 192). Moreover, the wheat of the North is hard wheat, while that grown in the South is soft wheat.

From what you have read about crops and about the climate and other natural conditions affecting agriculture in China, would you expect to find a sharp line of division between the agriculture of the North and that of the South? Though the Yangtse River section forms in some ways a distinct part of the country (sometimes called Central China), it may be thought of agriculturally as a zone of change, or transition, between the North and the South. Within it, in localities suited to them, are grown the main crops of both North China and South China. It resembles the South, however, more than it does the North.

Some "money crops." — Silk and tea are money crops in China, just as in Japan (pp. 171–173). In China, as in Japan, too, silk is by far the more valuable of the two, and the leading export of the country. Both crops were important in China long before they were in Japan, but in later years the Chinese have been losing ground in the face of Japanese competition. This is largely due to the fact that most Chinese producers follow the antiquated methods of their forefathers, instead of adopting the modern methods of their Japanese rivals. It is, perhaps, when Chinese farmers come into competition with those of other countries that they are most handicapped by their crude equipment and their unscientific, age-old methods.

China tea is grown chiefly on hillsides in the southeastern highlands where there is good drainage and at the same time plentiful spring and early summer rains. Silk is produced more widely. One important district, for example, is on the delta of the Si Kiang in the far south, where mulberry bushes are grown along the banks of various streams. Another district is in the great, hilly peninsula of North China, where silkworms are fed upon oak leaves. About two-thirds of the exported silk comes from the Yangtse Valley and North China, the remaining third from South China.

In recent years, cotton has become an important money crop in China. It is grown chiefly in the southern and southwestern parts of the great plain, and northward on either side of the Peiping-Hankow Railroad (Fig. 147). Several things have led the farmers of these sections to grow more cotton. Many of them formerly used part of their land to grow the poppy from which opium was obtained. When opium smoking was prohibited not many years ago, a substitute money crop was found in cotton. This did not mean, however, that the Chinese farmers, so slow to change, were taking up a crop *new* to them, for through centuries some cotton had been grown for home use in these sections. The farmers, then, were familiar with cotton culture, and of course knew the plant grew there successfully. It became profitable to grow this old, familiar crop on a much larger scale partly because of a mounting demand for raw cotton on the part of the growing textile industry in near-by Japan (p. 176). In the case of cotton, in contrast with silk and tea,

By courtesy of Wellington D. Jones

Figure 178

Japan became a helpful customer instead of a rival producer. Much export cotton, too, could move at reduced cost to seaports over the new railroads.

The Border Lands

China's border lands. — What did you learn from your map study (p. 182) about the general density of population in Manchuria, Mongolia, Sinkiang, and Tibet? Study the maps again in connection with the following questions and statements. Which of these four areas has the densest population? In what part of Manchuria itself is the population densest? The map in Figure 7 shows that much of Mongolia, Sinkiang, and Tibet has fewer than sixteen inhabitants per square mile. As a matter of fact, large areas in all three of these border lands are entirely unoccupied, and one may travel for days across great stretches of country in them without seeing a single inhabitant. By again comparing the maps in Figures 7, 147, 150, and 151,what reasons can you give for the sparse population of most of the western border lands? For the fact that Manchuria is on the whole settled more densely than the western border lands? For the location of the area of densest population in Manchuria? Check your answers to these questions as you read the following paragraphs, which give glimpses of these vast border lands of China.

Manchuria, a land of promise. — Manchuria is a new land, undergoing rapid settlement. Millions of people have moved there in recent years from the crowded plains of China Proper. The southern part of the Manchurian lowland, with fertile soils and summer rains adequate for farming, naturally was occupied first. Doubtless the lowland always will have a denser population than the highlands on either side.

The principal crops of Manchuria are soya beans, kaoliang, millet, corn, wheat, and barley. Figure 178 shows corn and beans growing on the rich, almost flat plain of Manchuria. Soya beans are the great cash crop, and nearly one-fourth of the cultivated land is devoted to them. Manchuria has, indeed, been called the " land of beans." Soya beans and soya-bean products have long been used in China for many purposes. The oil pressed from the beans is used, for example, in place of butter and lard. In recent years great quantities of bean-oil and bean-cake have been exported. The exported oil is used chiefly in the manufacture of soaps, and the cake as fertilizer. The demand abroad for bean products has helped greatly to make farming profitable in Manchuria, and so to make that country a land of opportunity for settlers.

In the highlands of northern and eastern Manchuria there are widespread forests containing pine, spruce, oak, and other valuable timber trees, and in places there are busy logging camps. In places, too, there are deposits of iron, coal, and other minerals, some of which are being worked. While there are these and other industries besides agriculture, the chief wealth of Manchuria is in its farms.

Though there are few Japanese farmers in Manchuria and never will be many, because of the climate, yet Japan is trying to control the region. Japanese have spent great sums there in opening mines, building railroads, and making other improvements. Japan buys and sells more in Manchuria than does any other country. Control of Manchuria in the future would help Japan to protect itself against possible enemies from the west. For these and other reasons Japan aids and controls the new republic of " Manchukuo," set up in Manchuria in spite of the opposition of China. The dispute between China and Japan concerning their rights in Manchuria may cause much further trouble.

Figure 179 *By courtesy of Wellington D. Jones*

Figure 180 *By courtesy of Wellington D. Jones*

Mongolia, a land of nomads. — For the most part, Mongolia is a land of wandering Mongol herdsmen who frequently shift their tent-villages, and the sheep (Fig. 179), cattle, ponies (Fig. 180), and camels upon which they chiefly depend, from one grazing area to another. On the great central plateau or high plain of Mongolia, grasses that grow quickly after the infrequent rains are almost the only useful vegetation. These vast, yellow tablelands are dry largely because bordering mountains rob the in-blowing summer winds of most of their moisture. Summers are very hot, winters severely cold, and the wind, often laden with dust, is never at rest. From this interior area out-blowing winds in winter and spring carry great quantities of yellow dust to the plain of North China. Here and there (Fig. 147), mountains rise above the huge Mongolian tableland. These receive more rain than the lower land, are in some cases forested, and play an important part in the lives of many of the Mongols. They furnish the best grazing, water and fuel, and shelter in winter.

What would you expect the Mongols to exchange for the needed things which their country does not furnish? In addition to sheep, cattle, ponies, camels, wool, and hides, the products of the all-important grazing industry, there also are exported large quantities of salt and soda from desert deposits. The principal things which the Mongols take in return are cotton and woolen cloths, iron ware, sugar, and tea. It is said that more than one million camels are employed in the caravan trade in and across Mongolia. The chief commercial gateway to eastern Mongolia is Kalgan (Fig. 147), from which a railroad runs to Peiping. As you should expect, tents, bridles, and saddles are important among the few things made by the Mongols.

The heart of Mongolia, arid and windswept, has been a land of unrest from time out of mind. Here wandered once the Huns, who overran part of Europe. Here was the home of the hungry Mongol hordes that invaded China Proper (p. 184). Time and again the fearless horsemen of the grasslands, toughened by a life of hardship, have invaded some of the rich agricultural plains of Asia and Europe.

Sinkiang, a desert with fertile oases. — In contrast to the Mongols, most of the people of Sinkiang live in permanent hamlets and towns and depend chiefly on agriculture, though only about one-fiftieth of the land is under cultivation. The reasons for these facts are not far to seek. The heart of Sinkiang is a great desert basin, with high ridges of wind-drifted sand. It is more arid than interior Mongolia because it is nearly surrounded by higher mountains; for the most part, it is useless even for grazing. Some of the moisture brought from the Indian Ocean by in-blowing summer winds is deposited as snow and sleet on the lofty mountains which, like a giant horseshoe, nearly encircle the basin. As a result, there are snow fields and glaciers high in the mountains, and from them torrential streams descend through narrow, rocky valleys to the basin floor. Here they

gradually dwindle in size, losing water by rapid evaporation into the dry air and by sinking into the thirsty earth, until finally they are lost in a reedy marsh or disappear in the desert sands. Moreover, much water is taken from them for irrigation near the foot of the mountains, on the fringe of the cloudless desert. Here one finds rich oases, in places where there is fertile soil and where water may be had for irrigation, separated from one another by gravelly or sandy wastes. Can you find on the map in Figure 7 the horseshoe-shaped belt of comparatively dense population in Sinkiang? This is the piedmont belt which is dotted with the clustered hamlets, walled towns, and cultivated lands of the country.

In the oases the people grow fine crops of grain, cotton, vegetables, and fruits, and where upon the uncultivated lands there is scant pasturage, sheep, ponies, and camels are grazed. Only a little trade is carried on with the outside world. Wool and cotton are the chief exports, and tea, sugar, cotton cloth, and kerosene are among the few imports.

Tibet, a "closed land." — Tibet has been aptly called a "closed land." It has been closed by its rulers, and even more by nature, against outside people, and by its isolation and barrenness it is closed to progress within. On every side Tibet is bordered by long ranges of towering, snowy mountains, whose passes are few and difficult to traverse. The huge plateau within these mountain walls itself ranges from 10,000 to more than 17,000 feet in height. Because it is so high, the temperatures are low for the latitude, and winters are bitterly cold. Even in summer, the temperature of the land and lower air, warmed by a sun which at noon is not far below the zenith, falls rapidly during the hours of darkness. There is, accordingly, a great range in temperature between day and night. When you compared the rainfall maps in Figures 150 and 151 with the map in Figure 147, perhaps you noticed that the mountains along the southern and southwestern borders of Tibet receive a heavy precipitation in summer. Away from its mountainous, rain-catching border, Tibet, as your maps show, is very dry. In such a land, comparatively cold even in summer, with great changes in temperature from day to night, and with little rain, not much can be grown and few people can live.

Most of the people of Tibet live in more or less sheltered valleys north of the Himalaya Mountains (Fig. 147), near the southern border of the plateau. They raise barley, wheat, and vegetables, partly by means of irrigation. Central and northern Tibet are for the most part bare and stony, with scarcely a tree or shrub to be seen. In some districts in these sections there is in summer a scanty growth of grass, upon which small bands of nomads graze their cattle, sheep, goats, and yaks. Their flocks and herds are their chief dependence for food, clothing, and shelter.

From the head of navigation for small craft on the Yangtse, coolies carry tea, cotton goods, and a few other things up to the border of Tibet, where they are exchanged for the few exportable products of the great plateau which have been gathered from far and near, such as wool, hides, and furs. Some trade is carried on across the Himalayas, but only with difficulty, as the picture in Figure 181, taken on a trail in those mountains, perhaps suggests. On the whole, Tibet is a desolate land of little opportunity.

Some Leading Cities

The old capital. — Find Peiping again on the map in Figure 147. It is situated at the northern end of the Great Plain of China, near a much-used pass across the mountainous edge of the near-by plateau. On this natural route of trade and travel between Peiping and Mongolia stands Kalgan (p. 195), the gateway city. To the east of Peiping is

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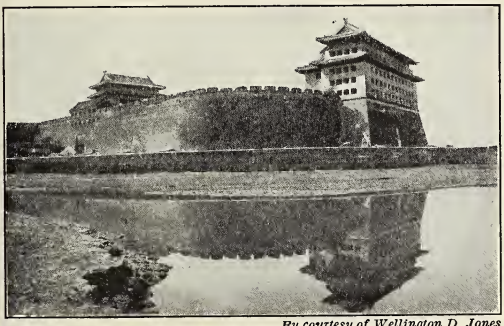
Figure 181



By courtesy of Wellington D. Jones

Figure 182

By courtesy of Wellington D. Jones

Figure 183

the southern end of the narrow, lowland passway into Manchuria along the coast. These and other doorways to the plain were used at different times by invaders (p. 195), some of whom established themselves as rulers at Peiping. Although Peiping was a convenient headquarters for these rulers from without, its situation, far from the center of China Proper and far from the center of population, was not a good one for the modern capital, and Nanking (Fig. 147) was made the capital a few years ago. Peiping is one of the great cities of the world only because for almost a thousand years, under various names and different dynasties, it was the capital. It is neither an important manufacturing city nor an important commercial city, but it is a great educational center.

Peiping is walled about like a fortress. Within it there are two distinct cities, the Tartar or North City and the Chinese or South City, separated from each other by a wall. Figure 182 shows part of the outer wall of North City, a section of the moat outside of the weather-beaten wall, and two of the gates and gate-houses. The gate-houses formerly were used as quarters for troops and as storage places for grain. Enclosed within North City is the " Imperial City," with temples, palaces, and mansions set among groves of trees. This in turn encloses the " Forbidden City," where stands the splendid palace occupied by the former imperial rulers of China. Both of these inner cities are surrounded by high walls and by wide moats now partly filled with silt.

In Figure 183 you are looking across part of the Imperial City. The mounds in the distance are artificial, for Peiping stands on an almost flat, sandy plain. The street shown is one of the wide, electrically lighted thoroughfares of the city. Even such streets are hard-surfaced only in the middle, and there are no sidewalks. The unpaved strips at the sides, which heavy carts are required to use, are deep in dust or mud, according to the weather.

Most of South City has narrow, twisting streets, very poorly lighted at night by small kerosene lamps. By day, many of the streets are choked from side to side with slow-moving streams of people and vehicles bent on all

manner of errands. Rickshas, men with heavily loaded wheelbarrows, and street peddlers who sell cooked food and wares of many kinds help to make up the picturesque and confused scene. Hundreds of small shops line the business streets. The closely packed buildings, most of them with only one story, are made in almost all cases of gray brick. When the rains are hard, many of the courts fill with water, and many of the unpaved streets become almost impassable. The ricksha coolies raise their prices rapidly in wet weather, for the mud makes heavy pulling, and water quickly ruins their cloth shoes.

Even more disagreeable than very wet weather in Peiping are the frequent dust storms of the dry season. Wind storms which last for two or three days cover everything in the city with a fine, yellow dust brought from the west and northwest (p. 195). At such times the sky turns yellow, and the sun fails to pierce the stifling dust. Layer after layer of dust settles upon the city. It makes dull even the palaces and temples, with their upturned roofs of blue, green, and yellow tiles, and makes still more drab the poorer buildings. The refreshing summer rains wash off the buildings, but sometimes change to mud the dusty ground.

Well water, distributed on wheelbarrows by a small army of water dealers, still supplies most of the city. Each day the sewage of Peiping is collected by another army of coolies and taken from the city on wheelbarrows for use as fertilizer. In addition to the thousands of small shops in Peiping, there are some seventy-five open-air markets where one may see a multitude of things displayed. Some are really covered streets, with many stalls and tables. Peiping is a city of rare interest, crowded with memories of China's checkered past.

China's seaports. — The modern growth of the great seaports of China began when foreigners secured footholds in them (p. 184). Less than a century ago, Shanghai, now by far the greatest of the ports, was a small city crowded within walls built hundreds of years before as a protection against pirates. The remainder of the site of the city of to-day, which has a population of about 1,500,000, was a land of rice and cotton, dotted with tiny farm hamlets. Find Shanghai again on the map in Figure 147. Find also Canton, Tientsin, and Dairen. These are the greatest four ports on the coast of China. Their imports and exports are carried entirely in foreign ships, for, even in these days when the oceans are great highways rather than barriers, no ship engaged in overseas trade flies the flag of China.

1. Notice the positions of the leading seaports with reference to the great river basins and lowland plains of China (Fig. 147). Manchuria, North China, Central China, and South China each has one of the leading seaport cities. How does the situation of Dairen differ from that of the other three? Do you not wonder why the chief seaport of Manchuria is not on the river which flows into the broad, northeastern arm of the Gulf of Chihli, as close as possible to the productive lowlands of Manchuria? Instead, it is near the end of a rugged peninsula which juts far out to sea, well-removed from the agricultural lowlands upon which it depends. The river at the head of the gulf is shallow and there is a troublesome bar off its mouth, so that only junks and comparatively small coasting steamers can enter it. Moreover, it is closed by ice to all navigation in midwinter. At Dairen, on the other hand, there is a good, deep-water harbor, easy of access from the sea, which is open throughout the year. The city is connected with the Manchurian lowlands by a railroad (Fig. 147).

2. Why did not the chief seaport for North China develop on the lower Hwang Ho (p. 183)? Then, too, Tientsin, situated farther north at the head of navigation on a small river, is conveniently near to Peiping, the old capital and great inland city of the North. Tientsin is, indeed, the port of Peiping. Notice that railroads connect Tientsin with a large area. The river below the city had a very winding course on the almost flat coastal plain, a rather shallow channel, a bar off its mouth, and it is frozen over in winter. These difficulties have been partly overcome. The river has been dredged and con-

Figure 184 © Ewing Galloway

siderably straightened, and the closed season has been shortened by the use of ice-breaking boats.

3. When you found Shanghai and Canton on your map, did you see that Shanghai is not on the Yangtse Kiang and that Canton is not on the Si Kiang? Shanghai is on a small tributary of the Yangtse, fourteen miles above its mouth. This tributary is not subject to floods, like the Yangtse, but it had to be deepened to admit large boats. Canton still is beyond the reach of big ships, and even the coasting steamers which enter its small river commonly lighter their cargoes some miles below the city. Tientsin, Shanghai, and Canton, then, all had poor natural harbors. The harbors of most other delta cities are poor, too, in their natural state, and must be improved if they are to meet the needs of modern shipping. The harbors of these delta ports of China, and the approaches to them, all need further improvement. In contrast, such harbors as that of Dairen, made deep by the sinking of a rugged, highland coast, are likely not to need much, if any, improvement. Where else along the coast of China do you find a ragged shoreline similar to that on which Dairen is situated (Fig. 147)? The ports along these other sections are of minor importance, however, for reasons which you should now be able to give.

4. What have you learned which helps to explain the fact that Shanghai is the chief port of all China? It is the commercial gateway to the Yangtse Basin, the richest part of China, and to the Yangtse River and its tributaries, the greatest highway system of the country.

5. Find Hankow again on the map in Figure 147. What have you already learned which helps to explain the fact that it is the greatest inland commercial center of China (pp. 186, 188)? Notice now that (1) it is on a great bend of the Yangtse, (2) at the mouth of the Han Kiang, and (3) nearly opposite two great lakes just south of the Yangtse. During the rainy season small boats can ascend several of the tributaries of these lakes for considerable distances. These tributary waterways of the Yangtse, which in their lowland courses drain densely settled areas (Figs. 147 and 167), help to focus trade on Hankow. Since Hankow, the great central city, can be reached by ocean-going ships, it is really a seaport, though far inland.

Something to do. — What sorts of things, in general, should you expect the five great seaports of China, counting Hankow now among them, to export? What sorts of things, in general, should you expect them to import? Since the Chinese are so largely an agricultural people, and manufacture comparatively little apart from the things made in homes throughout the country, does it not seem natural to expect that the exports would be chiefly agricultural products and the imports chiefly manufactured commodities? As you read further, see to what extent this is true. Great commercial cities are likely also to be manufacturing cities, as you have repeatedly seen. This is true in China, as elsewhere. The five great commercial ports, which together carry on eight-tenths to nine-tenths of the foreign trade of the country, are also the leading five manufacturing cities. As you read about these cities, notice how their trade furnishes raw materials for their leading industries.

Dairen, a Japanese city in China. — Dairen is in many ways a Japanese, rather than a Chinese, city. It has been leased by China to Japan for a long term of years. The railroad which enters it, most of the ships which visit it, and most of its business houses are owned by Japanese. Most of the sea trade of the city is with Japan.

Dairen might be called the "city of beans," for soya beans, bean oil, and bean cake are the leading items in its export trade, while the making of bean oil and bean cake is its leading industry. Figure 184 shows part of a crowded wharf at Dairen, on which there are stacks of gunny sacks filled with soya beans, and piles of bean cake. Various other farm products, such as wheat, kaoliang, and millet, also are shipped in varying amounts. Coal from collieries owned by Japanese is exported. Just as the more important ex-

ports of Dairen represent products of the farmlands of Manchuria, so the leading imports represent needs of the farming population. This is true, for example, of cotton goods, by far the leading imports, and of gunny sacks, farm machinery, and kerosene.

The trade and industries of Tientsin. — The chief exports of Tientsin are raw cotton, beans, eggs, straw braid for hats, and pig bristles for brushes, mostly from the northern part of the Great Plain of China; wool from the grazing areas of the Northwest (p. 195); and rugs, most of them made in Tientsin and Peiping. The bulk of the raw cotton, beans, and eggs, and much of the wool, are shipped to Japan. The chief imports are cotton goods, kerosene, lumber, cigarettes, machinery, iron and steel, rice, and sugar.

The manufacture of cotton in Tientsin has become important in recent years. It has been aided by (1) the near-by supply of raw cotton (p. 193), (2) an abundant and comparatively cheap labor supply, (3) cheap coal from mines on railroads leading to Tientsin, and (4) a great market for cotton goods in the tributary area of the city, most of whose people dress in cotton clothing. Cheap labor, the fact that Tientsin is a great wool market, and the popularity in recent years of Chinese rugs in the United States, all have aided the rapid development of the Tientsin rug industry. Several furniture factories in Tientsin use some of the lumber imported into this almost treeless part of China. Near the city, as at many other places along the coast of China, much salt is manufactured. The many mounds of salt and the numerous windmills used for pumping salt water into the "salt fields," where the water is evaporated by the sun, are striking landscape signs of the industry.

Shanghai, a city of contrasts. — Think once more of what you know which helps to explain the fact that Shanghai is the greatest port and trading center of China (p. 199). Largely because of the situation of the city with reference to the Yangtse River and its basin, it has gained other commercial advantages in greater degree than any other Chinese port. Nearly all shipping lines to China from other countries make Shanghai their port of call. The head offices in China of the principal foreign firms doing business there are at Shanghai. The banking facilities of Shanghai are the best in China. Its outstanding commercial importance has helped to make Shanghai the leading manufacturing center in China, while its industries help to stimulate trade.

Shanghai also is interesting as "a city of contrasts." In "Foreign Shanghai," imposing modern structures (banks, clubs, office buildings, hotels, and others) face the river across a wide thoroughfare called the "Bund," "the pride of foreigners in China." Within the walled native city, closely packed Chinese shops and houses line narrow, dirty streets, which present much the same appearance as they did centuries ago, except that telephones have been installed. The Bund itself presents striking contrasts. Automobiles and motor busses mingle with rickshas and wheelbarrows in a medley of foreign and native traffic, while Chinese craft crowd the river's edge in front of the foreign buildings. Though in Shanghai the Chinese are so closely in touch with western customs and methods, it has affected their own life and work but little. To the Chinese, their own ways, inherited from the dim past, are best. Shanghai's commercial and industrial growth has been due largely to the capital and enterprise of foreigners.

Shanghai is the chief outlet for the silk exported from central China, and by value silk is the most important export from the city. Raw cotton, tea, bristles, straw braid, peanuts, eggs, and wool are other important exports. Cotton yarn and cotton textiles are the leading imports, while others of importance are cigarettes, metals and metal goods, refined sugar, kerosene, machinery,

Figure 185 *By courtesy of Wellington D. Jones*

paper, and lumber. Which of these items recall the foreign trade of Tientsin?

Cotton mills represent the leading manufacturing industry of Shanghai. What have you learned which helps to explain this? Flour mills and establishments for reeling silk from cocoons use other products of the tributary area. In or near Shanghai there also are shipbuilding yards, foundries, Portland cement works, and the mills and factories of other rising industries.

" The collecting place of nine provinces." — The Chinese call Hankow " the collecting place of nine provinces." What have you learned which explains why it is the greatest market of inland China (pp. 186, 188, 199)?

In Figure 185 you can see several large steamers anchored in the Yangtse off Hankow. Do you think the surface of the river was at its highest level when this picture was taken, or not? Why? When the river is in flood, the low, bare ground in the foreground of the picture is deep under water. Steamers at Hankow are loaded and unloaded by hand. The smaller ones usually are loaded and unloaded at " hulks," or floating piers, which rise and lower as the level of the water in the river changes. The larger ones anchor in midstream, and goods and passengers are taken between them and the shore chiefly in rowboats, or " sampans," as they are called. Two such boats may be seen in the foreground of Figure 186, together with many small sailing junks at anchor. No fewer than twenty-five thousand junks of various kinds are engaged in the river traffic which focuses at Hankow and the two cities near it (Fig. 147).

The foreign trade of Hankow, which has

Figure 186 *By courtesy of Wellington D. Jones*

increased enormously in recent years, is carried on partly through Shanghai, and in part directly. For example, a direct and thriving freight service is maintained between Hankow and Japan during the summer, when the waters of the Yangtse are high. Among the leading exports of a recent year were raw cotton, eggs and egg products (albumen), silk, and seeds. Among the chief imports were cotton goods, metals and metal wares, kerosene, paper, and refined sugar. Which of these items recall the foreign trade of Tientsin and Shanghai?

The fast growing industries of Hankow and vicinity have resulted in no small measure from exceptional advantages for collecting raw materials and for distributing manufactured goods. Across the Han River from Hankow is the greatest of the manufacturing plants of all China, the Hanyang Iron and Steel Works, partly shown in Figure 187. The company which owns the plant, in which Japanese are heavily interested, owns also a rich colliery and a rich iron-ore mine that are comparatively near the city. Among the other manufactures of Hankow and its neighborhood are plants for making egg-products, flour, cotton goods, matches, and cigarettes, a factory for spinning silk, and many brick kilns. Though Hankow is in the heart of China, most of its important

Figure 187

Methodist Prints

Figure 188

© *Ewing Galloway*

manufacturing enterprises are managed by foreigners.

The great metropolis of the South. — What have you already learned about Canton (pp. 188, 199)? The population of this great delta city is about 1,600,000. Many people long since left its overcrowded land area to live in boats upon the river and some of the creeks which flow into it. It has been estimated, indeed, that something like a quarter of a million Cantonese now live in boats. The attention of a foreigner approaching Canton on a river steamer is likely first to be attracted by the colorful water life of the city (Fig. 188). Sampans and junks of every size and description lie in untold numbers along most of the river front.

In front of the city lies a little island, built up long ago from a mere sand and mud flat by the English and French, on which stands the principal foreign settlement of Canton. Its banks, trading houses, hotels, foreign government offices, and villas, its smooth lawns and shaded streets, and its inhabitants from overseas, may be thought of as a bit of the modern Western World, planted insecurely on the edge of the age-old Chinese city.

Though in general the appearance of the native city suggests at once that it is very old, some striking changes have nevertheless been made in recent years, and some people have found in them signs of the long-awaited "awakening of China." For example, the old walls of the city have been torn down and replaced by a boulevard, and a few streets have been made wide. A row of concrete buildings of several stories, most of them representing curious mixtures of western and Chinese ideas, now faces the river along the Bund (Fig. 188), where most of the foreign business enterprises are centered. Perhaps it is natural that Canton should adopt some of the ideas and ways of other lands sooner than most Chinese cities, for it has been longest in contact with foreigners (p. 184), and it is from Canton and the surrounding district that most Chinese have gone to other countries. Most of the Chinese in the United States, Hawaii, and the Philippines, for example, are Cantonese. Many of these Chinese sooner or later return to their native city, and take new ideas with them.

Most of Canton remains in every way strictly Chinese. Narrow streets, many of them mere alleys, some paved with uneven

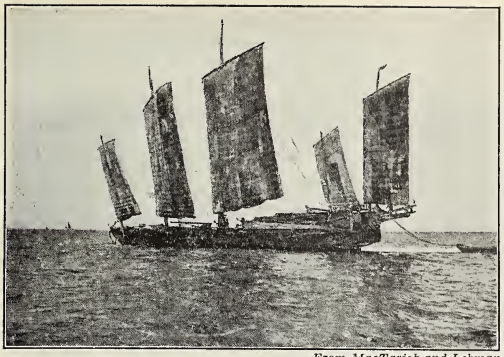


Figure 189 *From MacTavish and Lehman*

blocks of granite from near-by hills at the edge of the delta plain, are shaded by awnings from the hot summer sun. Throughout the day in the busier streets there is an unending procession of people, most of whom are dressed in loose, blue, cotton garments, and wear big, loosely woven straw hats. Many streets contain shops of one kind only, whose owners belong to some one of the many "guilds," or associations of dealers, which largely control the trade of Canton. Most of the shops have open fronts, which can be closed, however, with heavily barred shutters, before which there hang brilliant signboards in all colors bearing the names of the owners and the kind of merchandise sold.

Canton as yet makes little use of modern factory methods in manufacturing, but many things are made in the homes. Among them are fans made of paper, palm leaves, silk, or feathers; firecrackers; "glass bangles"; embroidery; silk and cotton fabrics made on hand looms; ivory ware; gold and silver articles of many sorts; sandalwood chopsticks, pipes, and other things; and rattan mats, chairs, and curtains. These wares for the most part are made, as they are sold, along particular streets where the people have specialized, perhaps for many generations, in their work. In general, this work is carried on now in a way very similar to that followed in ages past. The materials used in some of these industries are imported from other countries, and some of the products are exported in large quantities. While the household industries in which goods are made by hand or by hand-driven machinery are the most important ones, by far, in Canton, there are some modern manufacturing plants in and near the city. These include several match factories, several boat-building plants, mills for polishing rice, one or more factories manufacturing machine-made paper from rags and waste paper, a cement factory, and several cotton-cloth mills which use imported cotton yarn.

As you would expect from its size and from its situation on a fertile, densely populated plain, Canton has a large trade. Small boats navigate the many streams and bring from the interior farms and towns agricultural products and home-made wares, either for use in the city or for export. Coastwise steamers and big sailing junks such as the one in Figure 189 carry on an active trade with the seaports of central and northern China. In its foreign trade, Canton suffers from the shallowness of its river (p. 199) and from its nearness to the splendid harbor of Hongkong (Fig. 147), where much of the freight passing between South China and overseas countries is transferred from ocean ships to river craft or from the latter to the former. Indeed, Hongkong, rather than Canton, is the great commercial gateway of South China. Much of the foreign trade of Canton and part even of that between Canton and other Chinese ports is carried on through Hongkong. Nor does Canton distribute imported goods to the towns of the Si Kiang Valley as widely as might be expected. The merchants of such places prefer in general to deal directly with Honkong importers, rather than with Canton.

The chief imports of Canton from abroad are cotton yarn and cotton goods, rice (p. 192), kerosene, wheat flour, printing paper, metals and metal wares, and cigarettes.

Figure 190

The principal export, by far, is raw silk. Some others of importance are mattings, leaf tobacco, firecrackers, bamboo baskets, tea, palm-leaf fans, and ginger. How does the foreign trade of Canton resemble that of the other leading ports? How does it differ?

Hongkong, a British possession in China. — In Figure 190 you are looking from Hongkong Island, across part of its city and part of its harbor, to the mainland. The big ships in the harbor, which, as you see, is the narrow strait between the island and the mainland, may have gathered here from remote quarters of the globe, for Hongkong is one of the world's greater ports. Its vast trade is due partly to its roomy, deep harbor, which may be entered by vessels of any size at all stages of tide, and to its position close to the great lowland of South China, at a natural crossroads of commerce. It also is due partly to the fact that the British made Hongkong a free port which the traders of all nations may use on equal terms, without payment of customs duties.

The city of Victoria, the capital of the island, is little known by that name, the name Hongkong commonly being applied to both island and city. The city extends along the coast for about five miles, between mountain and sea. It covers a strip of low land along the water front, part of which is shown in Figure 190, and in places reaches back upon the less steep, wooded mountain slopes to a height of more than a thousand feet.

Though the island itself lacks fuel and raw materials for manufacturing, several important industries have been developed, especially shipbuilding, the refining of sugar, and rope making. The coal needed in its industries is imported from Japan, iron from Britain, sugar from the neighboring Chinese lowland, the Philippines, and lands of southeastern Asia which you have not yet studied, and abaca from the Philippines.

Hongkong Island may be thought of as one of the great " little places " of the world.

Summary Exercises

Comparing lists. — Compare your lists of *likenesses* and *differences* between China Proper and

Japan. If there are any likenesses or differences which others had discovered and you had not, add them to your lists. When your lists are complete and correct, copy them in your notebook.

Check questions. — 1. What ways have you noticed in which China seems to be backward?

2. What possibilities for better uses of lands and other resources in China have you found?

3. What facts which you have learned about China help to explain how so many people there can earn a living from the soil?

4. What facts have you learned which help to explain why commerce and manufacturing are not more important in China?

5. What have you learned about the activities of Japanese in China?

A relationship race. — On pages 188–189, find the sentence which begins, " The material most used for building . . ." The geographic relationship there pointed out might be suggested as follows: Use of brick as chief building material ⟶ abundance of clay in most sections. On page 190, find the paragraph beginning, " The fact that the summer season . . ." What geographic relationship is pointed out in that paragraph?

1. You might run a " relationship race " to see which one of you first can find, in the pages on China, twenty sentences or groups of sentences which clearly point out geographic relationships. List, by number, the page, column, and line on which each sentence or group of sentences that you select starts.

2. After the race, make for your notebook a list of the relationships you found and of any others which the study of China has suggested to you, using the " arrow " form of expression in so doing.

A graph for your notebook. — Draw a red line one-fourth inch long to stand for a mile of railroad. Draw a rectangle one-fourth inch wide and two and three-fourths inches long, and divide it into one-fourth-inch squares. Let each square stand for a square mile of territory. Label this part of the graph " United States." It shows that in the United States there is one mile of railroad for each eleven square miles of territory. To make a similar comparison for China, draw a red line one-fourth inch long, and *fifteen* rectangles, each one-fourth inch by four and a half inches in size, dividing them into fourth-inch squares. Label this part of the graph " China." What does your graph show? Add to it a suitable legend and title. Find in the text two sentences which this graph illustrates in part, and copy them under your graph.

More about cities. — Trace from the map in Figure 147 the outline of all China. Do not show the boundaries between its five parts. Trace the Yangtse Kiang, the Hwang Ho, and the Si Kiang. Put a dot on your map for each Chinese city having more than 500,000 people. Which four of these cities are not mentioned in the text? How many of these four are in the basin of the Yangtse? From what you have learned about the parts of China in which these cities have grown, about the appearance of other very large Chinese cities, and about life and work in those cities, what " pictures " do the dots for these cities suggest?

Write a paragraph giving all the reasons you can for the distribution of great cities which is shown by your map.

Things to explain. — 1. Hankow sometimes is called " the Chicago of China." In what ways do you think this name is justified? What striking difference is there, however, in the facilities for transportation in these two great collecting and distributing centers? Do you think Hankow might better be called " the St. Louis of China," or not? Explain why you think as you do. If Hankow were thought of as the St. Louis of China, to what Mississippi River city might Shanghai be likened? Explain why.

2. Much wool which is sheared in the spring in Mongolia and sent to Tientsin for export does not reach that city until the following November, December, or January. What facts have you learned that help to explain the length of time required for the transportation of this wool to Tientsin?

3. The wide, well-paved streets of Dairen, the large piers, with their big cranes, and the many warehouses, with railroad tracks alongside, suggest the " West " rather than the " East." What have you learned about Dairen which helps to explain its " western " appearance?

4. Wheat is raised in China by methods very different from those used in Canada and the United States. Before the wheat is planted in the autumn, the ground is fertilized heavily and then plowed or spaded. During the spring the wheat is hoed frequently, especially after any chance shower that may wet the ground. Sometimes the grain is cut with a sickle. Sometimes the plants are pulled out of the earth by hand, the soil clinging to their roots is shaken loose, and they are carried home in small bundles. After the harvest, children are sent into the fields to gather every scrap of straw or stubble that may have been left by the harvesters. What facts have you learned about the Chinese and their problems which help you to explain their use of such methods?

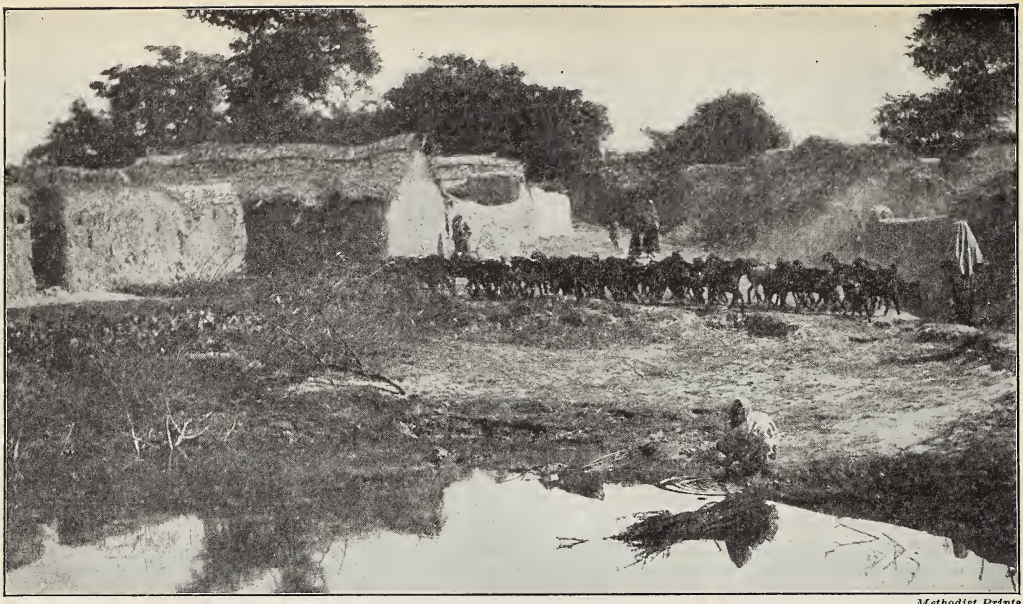


Figure 191 *Methodist Prints*

INDIA

Comparisons. — 1. India, like Japan and China Proper, is chiefly an agricultural country. The map in Figure 7 shows another way in which the three are similar. What is it? As you should expect in view of these two likenesses, the average size of farms in India is small.

2. In your study of other densely settled agricultural countries, you have seen that in some of them — Denmark, for example — special types of farming have enabled many people to make good livings from very small farms. You also have seen, however, that in Japan and China, where the farmlands are settled much more densely than in Denmark, most of the farmers make only poor livings even by hard work and by the use of intensive methods. Since they earn very little, and so have little to spend, they must live upon very small amounts. The food, clothing, and shelter which most Chinese and Japanese farmers have would not be regarded as "a living" by most farmers who dwell, for example, in the United States. On the other hand, the food, clothing, and shelter which an American farmer regards as "a living" would seem to a Chinese or Japanese farmer to be much *more* than "a living." We say, then, that the "standard of living" of farmers in China and Japan is "lower" than that of American farmers. *In many cases, a low standard of living goes with great density of population in an agricultural country.*

In the case of India, should you not expect to find either that most of its farmers are very poor, or that some special types of farming which pay well have been developed? The picture in Figure 191 shows part of an Indian farm village. Do the houses and street suggest to you a high standard of living, or a low one?

3. By comparing the maps in Figures 7, 147, 150, and 151, what facts can you find about the very densely settled parts of India which help to explain why they are settled densely? What facts can you find about the parts where population is sparse which help to explain why they are peopled sparsely?

4. India is a land of many *peoples*, as well as of many *people*. Much as the Mongols pushed from less productive lands into China Proper, so, from time to time, various peoples have invaded India,

attracted by stories of its fertile lands and other riches. Most of the peoples of India are more nearly like those of southwestern Asia than like those of Japan or China. They differ much one from another in language, customs, and beliefs, and never have worked together well.

One thing which has held the peoples of India apart is the fact that they live in very different kinds of places. What difference, for example, do you find between lands near Karachi and those near Calcutta (Figs. 147, 150, and 151)? Moreover, natural barriers separate some parts of India from others. By comparing the maps in Figures 147, 150, and 151, find the desert barrier which lies between Karachi and Delhi. Notice also the great plateau between Bombay and Calcutta.

5. India, unlike Japan and China, is not an independent country. It is part of the British Empire (p. 9). The preceding paragraph should suggest one reason why it was possible for the British to gain control of India. The British who live there number less than 200,000, while the total population exceeds 300,000,000. As this fact might well suggest, the British came, not in search of land for homes, as did most of the peoples who had come earlier, but for trade. The following comparisons suggest some reasons for the development of trade between Britain and India.

What is the distance, in degrees, between the southernmost point of India and its northernmost point (Fig. 147)? Between the southernmost point of Greece and the Arctic Circle (Fig. 8)? Does this comparison help you to picture India as a land about as large as all Europe except Russia? When you consider that this vast land had long been famed for its riches, does it not seem that the British might well have expected to find there many opportunities for trade? Compare the latitude of India with that of Britain. Does this comparison suggest a similarity between the products of India and those of Britain, or much difference? How might this fact help to explain the opportunity for British trade with India?

Directions for reading. — You should think of India now as a vast, varied, and densely peopled land in low latitudes, whose riches have attracted to it many peoples, all of whom now are under the guidance or control of Westerners. As you study further about various parts of India, try to answer about each of them the following questions.

1. How are the people here making their livings? Why are they making them in these ways?

2. What benefits, if any, have come to this part of India through the work of Westerners?

3. If the British have done any work here, what benefits have come to them from it?

The answers to these questions will help you, in turn, to see why some parts of India have been developed more than others by the British.

India's Mountainous Borderlands

A land apart. — As you might expect, the part of British India which recalls China Proper more than any other is Burma (Fig. 147). Notice its latitude. Should you expect work in Burma to resemble most nearly that of South China, Central China, or North China? Why? The picture in Figure 192 was taken near Rangoon (Fig. 147). How do the maps in Figures 147, 150, and 151 help you to explain the dense vegetation which you see there?

Burma is a "land apart." Notice in Figure 147 that no railroad joins it to the neighboring part of India. Notice also the general direction of its rivers and mountain ranges. Does not their direction suggest to you a reason for the lack of east-west land routes?

Burma. — It is difficult to enter Burma even from the sea, except where rivers afford highways into it. Steep coastal cliffs, shores bordered by dense forests, or mangrove swamps on delta lands are not inviting landing places. The Irrawaddy (Fig. 147), though not the longest of Burma's rivers, is navigable for a greater distance than any of the others. Its valley is the heart of Burma, and Rangoon, near its mouth, naturally is the largest city of the country.

Journeys in Burma leave vivid impressions of green mountain slopes, mighty forests, flat delta lands, rivers great and small abounding in fish, and innumerable rice fields. What signs of the hot, wet summers of the land do you find in Figure 193? Hundreds of villages have a river highway and good fishing grounds in front of them, the dense forest behind them, and near-by strips of rice lands along the river. Rice and fish are the common foods of the people, and rice their chief money crop. Figures 192 and 194 suggest some of the forest work of Burma. The rafts of bamboo shown in Figure 192

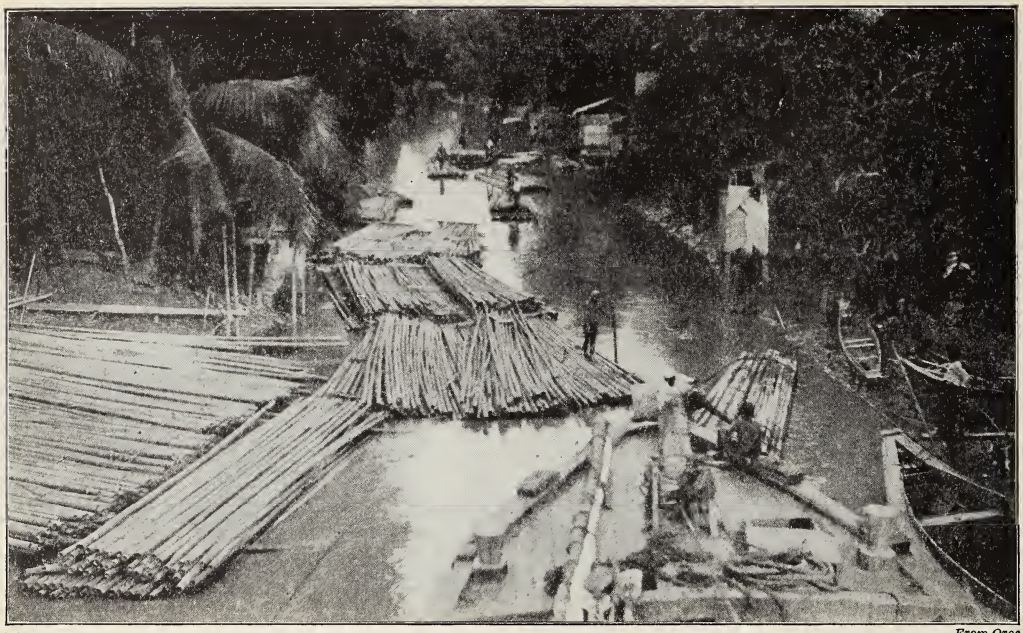


Figure 192 *From Oroc*

Figure 193 *By courtesy of Grace Davis*

were in a small creek in the Irrawaddy delta. The elephants in Figure 194 are moving heavy logs of teak, the most valuable product of the Burman forests. Most important

Figure 194 © Ewing Galloway

among the factories of Burma are its rice mills, where rice is polished for export. Sawmills, as you might expect, are next in importance, and third in rank are petroleum refineries. Most of the wealth which has attracted western traders to this land beyond the Bay of Bengal comes from its valley farmlands, its forests, and its oil wells. Rice, teak, and petroleum are its chief exports. Most of the improvements in the equipment for handling these products are the work of Westerners.

A northern borderland. — West of Burma, along the northern border of India, extends another belt of very dense forest at the base of the greatest highland in the world. As the Alps are the "roof of Europe," so the Himalayas are the "roof of Asia." What do the maps in Figures 150 and 151 show about the land along the southern slopes of the Himalayas which helps to account for the strip of dense forest at their base? As the comparison of the maps in Figures 150 and 151 perhaps has suggested to you, India is another "monsoon land" (p. 190). In summer, winds blow from the Indian Ocean toward central Asia, and in winter they blow seaward (pp. 190 and 195). How do you account, then, for the very heavy summer precipitation along the southern Himalayan slopes?

Find near the northern boundary of India, north of Calcutta, the town of Darjeeling (Fig. 147). In Figure 195, you see in the distance a part of the main range of the Himalaya Mountains as it looks from this town in the "foothills," some fifty miles away. The trees in the foreground are those of the ridge top on which Darjeeling stands, itself higher than the summits of most of the Appalachian peaks. Not far from this hill station, a view of Mount Everest, the world's highest peak, may be had. If Switzerland's highest two peaks were set one upon the other, the summit of the upper one would not be much higher than that of Mount Everest. Yet this peak, about five and a half miles high, does not stand out strikingly from other near-by giants of the range. On these mighty mountains, almost no trees grow above a height of twelve thousand feet, and above the zone of grass and flowers the peaks are bare save for snow and ice. Between the foothills and the main range, lies a broad belt of other ridges and of valleys.

The people of Nepal (Fig. 147) and those of much of the remainder of the mountainous belt which borders the main range on the south are similar to the people of Tibet (p. 196). They live much to themselves in their mountain valleys, depending largely on their flocks and terraced farms for food and clothing, and on their forests for fuel and building material.

Descending from Darjeeling toward the south, one passes much timbered land, many plantations of tea on the hillsides, and clearings in which there stand villages surrounded by rice fields and groves of oranges. In many places, the forest strip at the base of the foothills is an almost impassable jungle of tall grass, bushes, and giant trees festooned with creeping plants. In its depths live tigers, leopards, rhinoceroses, and wild elephants.

Much of this northern borderland of India, then, is little used. It is one of the barrier parts of India which help to shut the country off from other lands of Asia.

Methodist Prints

Figure 195

A storied gateway. — On the map in Figure 147, find Khyber Pass, on the northwestern boundary of India. The least difficult land route into India from much of western Asia is the one which leads through Khyber Pass. Do you see that this pass is in the narrowest portion of the highland belt which lies along India's northern and northwestern borders? As you might well expect, many of India's invaders have entered the land through this famous gateway.

Figure 196 pictures the kind of country through which Khyber Pass extends, and a part of the modern road which has been built through the pass by the British. To-day, such land trade as is carried on by India with Afghanistan (Fig. 147) and other western Asiatic lands moves almost wholly through " the Khyber." It is dangerous, however, for traders to go through it without protection, because of raiding mountaineers. Westward from the pass live the Afghans, in a wild land of desert plateaus and mountains. Most of them are farmers, traders, or nomadic herdsmen; they are hostile to outsiders as a rule, and many of them are raiders. Two British forts help to guard the Khyber route, and, at stated times each week, troops escort caravans through the pass. In Figure 196 is shown one of the forts, and an encampment of soldiers on duty as guards. Do you think a good location has been chosen for the fort? Give reasons for your answer.

A northwestern borderland. — Baluchistan (Fig. 147) and Burma, the parts of India which are at opposite ends of India's great highland border, differ greatly. Baluchistan, like Afghanistan, is a land of herders, farmers, and traders. Many of the herdsmen are nomads who drive their flocks and move their black-tent villages from place to place. Most of the farmers live in villages of mud huts near their valley farmlands, on which they raise chiefly wheat, fruits, and jowar, a kind of millet. Trade between Baluchistan and the great plain of northern India passes, for the most part, through Quetta (Fig. 147). The least difficult route across the steep eastern edge of the Baluchistan highland is by way of the valley which leads to this town. Caravans of camels pass through Quetta, taking to the lowlands wool, blankets, dried fruits, and other highland products, and returning with sugar, cotton cloth, wheat, metal wares, and other goods.

Like many hill peoples, the Baluchs are good fighters. In earlier days, whenever times were especially hard, it was their habit to raid neighboring lowlands. When the British built a fort at Quetta, and stationed troops there, such raiding almost ceased.

Which should you expect to find more

Figure 196

densely settled, Baluchistan, with its high, sandy plateaus, stony wastes, deep gorges, and few irrigated valleys, or Burma, with its low, wet, rice lands, and rain-drenched, forested slopes? Check your conclusion by the map in Figure 7.

Peninsular India

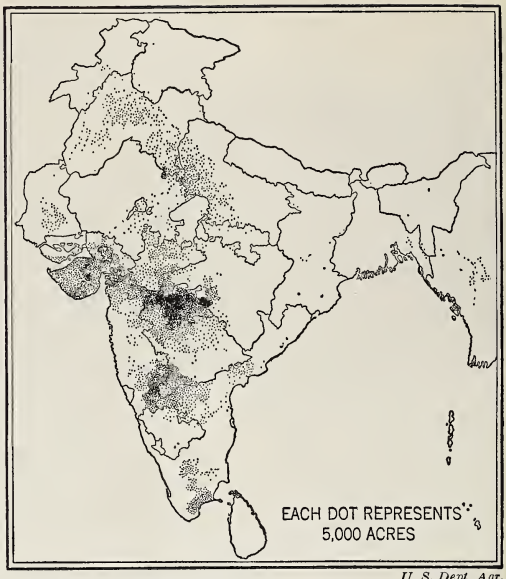
A well-peopled part. — Imagine a line drawn on the map in Figure 147 from one of the mouths of the Indus River to one of those of the Ganges. Do you see why the term "Peninsular India" sometimes is applied to the part of India south of this line? What likeness between Peninsular India and Baluchistan does the map in Figure 147 suggest? The vast plateau of Peninsular India is known as the Deccan. Is the Deccan peopled more densely than Baluchistan, or less densely? More densely than the coastal lowlands of Peninsular India, or less so? What reasons for these differences are suggested by the maps in Figures 150 and 151?

A western gateway. — On the map in Figure 147, find Bombay, the chief port of the western coast of the peninsula. Bombay is on a small island, but railroads connect it with the mainland. The water between the southern part of the island and the mainland affords an excellent harbor. As you enter it from the south, you see, to the right, small islands whose coasts are fringed by coconut palms and, to the left, part of the water front of Bombay. The many boats in the harbor, native sailing vessels, freighters, coastwise steamers, and ocean liners, suggest the importance of the port.

The picture in Figure 197 was taken in the southern part of Bombay, not far from the large, modern pier where your steamer would dock. As the picture suggests, the business buildings in this part of the city are chiefly western in appearance, rather than eastern. However, the tropical trees along the avenues and most of the people on the streets help to give an eastern air even to this portion of the city. There are hints, too, of India as "a land of religions." Occasionally one might see, for example, a sacred cow, wandering at

By courtesy of Wellington D. Jones

Figure 197



U. S. Dept. Agr.

Figure 198. Acreage of cotton

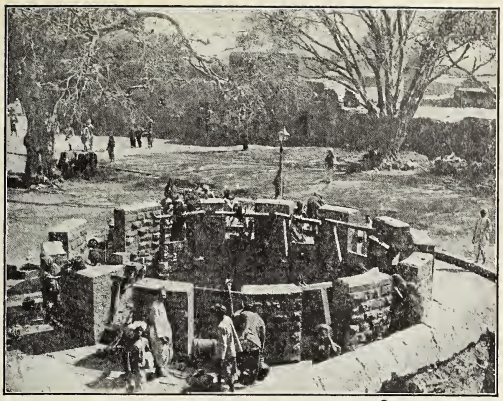
will along a main street amid native carts, automobiles, and street cars, or peacefully at rest in front of some imposing public building. Such hints are worthy of notice, because in India, as in China, various religious beliefs and practices greatly hinder progress.

North of the business district of Bombay is the native city, and still farther north lies a smoky manufacturing district in whose cotton mills many natives work. Largely by reason of these mills, Bombay is India's chief manufacturing city. At some of the wharves, one sees coal for the mills being unloaded, and raw cotton awaiting shipment to England or Japan. A view of the work of the northwestern part of the Deccan will help you to understand why the handling of cotton and the manufacture of cotton goods are so important in Bombay.

Glimpses of the northwestern part of the Deccan. — Find on the map in Figure 147 the railroads which connect Bombay with Calcutta and Madras. In traveling from Bombay through the northwestern part of the Deccan along either of these routes, you would cross a narrow coastal lowland, ascend the mountainous edge of the Deccan, and pass through plateau lands of great variety. Areas of rich crop lands in the Deccan are separated by tracts of boulder-strewn waste, of poor farmland, or of land fit only for grazing. There are wide stretches of nearly level land, tracts of rugged hills, deep valleys, and steep-sided, flat-topped mountains. Many hillsides are covered with forests, some stunted and scrubby, others furnishing bamboo and valuable timber of various kinds, such as ebony and teak. The landscape varies greatly not only from place to place, but also from season to season. Thus the crops, and the clumps of trees which almost conceal many of the small farm villages, have in early autumn a clean, fresh appearance, but in late " winter " and spring the landscape everywhere looks parched and dull. What have you learned of the rainfall of India which helps to explain this difference?

Farming is by far the most important occupation in the northwestern part of the Deccan, and about three-fourths of the people there are farmers.

Farming in the northwestern Deccan. — What does the map in Figure 26 show you about the use of farmlands in the northwestern Deccan? What does the map in Figure 198 add to your " pictures " of landscapes



© Ewing Galloway

Figure 199

there? How does this map help you to account for the most important manufacturing industry of Bombay?

In the chief cotton-growing district of the northern Deccan (Fig. 198), there is much rich, black, moisture-holding soil, well suited for growing cotton. Recalling that India is a monsoon land, you should of course expect this district to receive most of its rainfall in the summer months. Check your ideas of rainfall there by referring to the maps in Figures 150 and 151. Cotton is a "wet-season" crop. About the middle of June, as soon as the monsoon rains begin, cotton is planted. Nearly all the rain of the year falls by the end of October, when the cotton is ready to pick. The work of picking the cotton continues until the end of January; much of it is done by women and children. Most of the cotton grown in the Deccan is a short-fibered variety, best suited for making cheap, coarse cloth.

While a large amount of land in the northwestern Deccan is used for growing cotton, several times as much is devoted to food crops. Some of the food crops are wet-season crops, while others are grown during the dry winter months. Jowar (p. 210) is the chief wet-season food crop in many districts. It commonly is sown in mid-summer, and harvested in December. The grain is threshed in primitive ways, and winnowed. The stalks are used as fodder for cattle, the chief work animals.

The main foods of many people in the northwestern Deccan are cakes made from jowar meal, "ghi," which is a kind of butter, green vegetables, and the milk of goats, buffaloes, or cows. Though large numbers of goats and cattle are raised in all the farming districts, little meat is eaten. Beef is used much less than goats' meat, largely because of religious beliefs.

Wheat is chiefly a dry-season crop, planted usually in October or November. and harvested, for the most part, in March or April. Flax is raised for its seed, much of which is exported for use in making linseed oil. Other oilseeds and millets of several kinds besides jowar also are common crops. Oranges, rice, and other crops are grown with the aid of irrigation where water for the purpose can be stored in tanks or obtained from streams or wells. However, the irrigated land is only a small part of that which is tilled.

A low standard of living: danger of famine. — In the northwestern part of the Deccan, the people who depend upon agriculture are so numerous in proportion to the area of the farmlands that hundreds of thousands of them have barely enough upon which to live. The houses also indicate a low standard of living among most of the people. Many houses are constructed chiefly of sun-dried brick, and contain only one or two scantily-furnished rooms. In many cases, indeed, the chief "furniture" is a few earthern jars in which food is stored. As a rule, farm implements are few and very crude. Even in the larger towns and cities, where trade, handicrafts, and factory industries, chiefly the manufacture of cotton goods, provide work for part of the people, there are many signs of primitive conditions. Upon the enormous well shown in Figure 199, for example, a small city in the Deccan depends for its water supply.

In view of the fact that so many people in the northwestern Deccan have but scant reserves either of food or money, and live " from hand to mouth," it is not surprising to find that occasionally there are famines in this part of India, in spite of its varied crops, its long growing season, and its large amount of fertile land. If, as sometimes happens, the summer rains begin late or are much lighter than usual, the yields of crops are reduced and the supply of food diminished. The great heat of summer and the abundant sunshine cause such rapid evaporation of moisture from the plants and from the soil that some growing crops are quickly damaged even by droughts which are not severe. Low yields or crop failures bring want, perhaps even starvation.

The British have helped in various ways to reduce the suffering and loss of life occasioned by famines. Railroads built by them provide a means of transporting food to famine-stricken districts. At several places, too, government agricultural stations have been established at which experiments are being conducted with a view to discovering the best uses of farmland in this part of India.

Along the western coastal plain. — From the maps in Figures 147, 150, and 151, tell what food crop you should expect to find most important in the long coastal strip which extends from Bombay southward, west of the Deccan. In this rain-drenched, " steaming " lowland, one finds an India not only of rice, but also of coconuts and of spices and other products which attracted early traders. It is a land of tropical beauty, shut off from the interior by the densely forested slopes which form the steep, mountainous edge of the plateau. Along its palm-fringed coast there are no good harbors, and no large port. It is another " land apart," where " summer " always reigns and where there is no threat of famine from lack of rain.

An eastern gateway. — The gateway to the southern part of the Deccan is Madras, on the southeastern coast (Fig. 147). Notice that the lowland along this coast is wider than that along the western coast. Moreover, the eastern edge of the Deccan is not so steep as the western edge, and several rivers which rise near the latter flow to the eastern coast. These facts help to explain why the gateway city of the southern part of Peninsular India is on the eastern, instead of the western, coast. The southeastern coast is like the southwestern coast, however, in that it has no good natural harbors. The harbor of Madras was made by building two great masonry walls into the sea.

Madras bears little resemblance to most large cities. Though its population is smaller than that of Bombay, it occupies a much larger area. What difference in the sites of the cities helps to explain the difference in their extent? Most buildings in Madras are only one story in height, and many of the houses are partly surrounded by gardens or park-like grounds. Palm groves and even rice fields border some of its streets. Madras has the appearance of a large collection of villages, rather than that of a great city.

In the Madras district. — Agriculture is, of course, the chief work in the southeastern coastal plain and the southern part of the Deccan. The delta lands of several of the rivers are " seas of rice fields." Much land in the coastal plain is irrigated, from canals, tanks, or wells. The picture in Figure 200 is a threshing scene near Madras. Does it show modern, or primitive, farm methods?

In the southern part of the Deccan, millets, oilseeds, and cotton are leading crops, just as in the northern part. In the southern part, too, the people at times are threatened with famine.

Other parts of Peninsular India. — The parts of the Deccan which have not been mentioned are in most important respects like those which have been described. What do the maps in Figures 7, 147, 150, and 151 show about the part of the coastal plains of Penin-

Figure 200 © *Ewing Galloway*

sular India which has not been discussed? Recalling the facts you have learned about some of the lowlands, can you not, with the aid of the maps just referred to, " picture " the part you have not seen?

Peninsular India, then, is a land of contrasts. Strips of very productive coastal lowland border the vast and varied plateau which forms its core. In the Deccan, where, as along the coasts, agriculture is the chief work, there is much millet- and cotton-producing land, but millions of the farmers are poor, and occasionally many of them suffer from famine.

A Land of Two Great Rivers

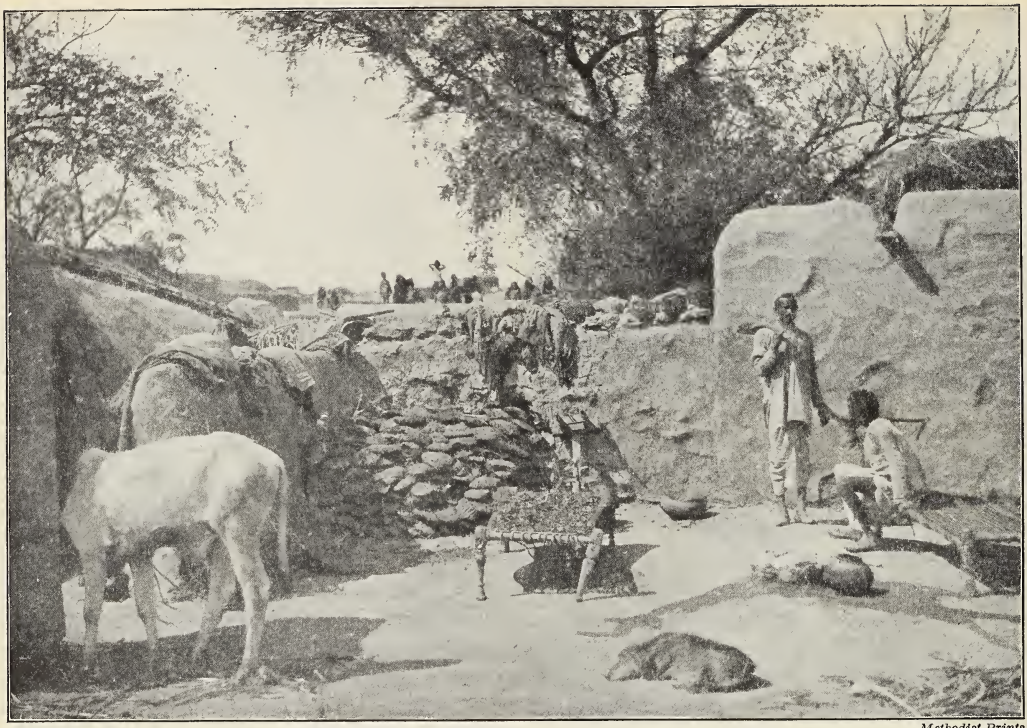
The two rivers. — Between Peninsular India and the mountains of India's northern border, lies a vast lowland. Find it on the map in Figure 147. Find the Indus River, the chief stream of the western portion of the plain, and the Ganges, the great river of the eastern part of the lowland. The broad lowlands drained by the Indus and Ganges systems make up most of the " Great Plain of India."

Thirsty lands near the Indus. — Notice on the map in Figure 147 the tributaries of the Indus which together form a pattern somewhat like that made by the ribs of a half-open fan. The land of this " fan " is known as the Punjab. Peoples who came into India ages ago through Khyber Pass found good farmland in the plains of the Punjab only in small strips along the rivers. Most land between the rivers was dotted with desert shrubs or clumps of grass, and was fit only for the flocks of nomads. How do the maps in Figures 150 and 151 help to explain this fact? South of the Punjab, near the lower Indus, is a still drier land called the Sind (Fig. 147). Here the green ribbon of cultivated land along the river formed an oasis in the wide, sun-scorched plains of yellow sand.

To-day, nearly half the land in the Punjab is farmed, and more than half of its many millions of people are farmers. Earlier peoples irrigated lands near the rivers, but much of the land now cultivated could not be used for farms till after the British built great irrigation works there. In the Sind, too, new irrigation canals have made possible the cultivation of much land, but vast tracts are unreclaimed. A little to the east of the lower Indus is a broad stretch of hot, arid plain, dotted with shifting sand hills, and as barren as the Sahara.

In the richest part of the dry lands. — You might cross the Punjab by rail (Fig. 147), or might motor along a famous road which the British have built from the vicinity of Khyber Pass southeastward to Calcutta. Imagine yourself upon this highway, in the heart of the Punjab plains, on a day late in April. Along the road go not only swift-moving automobiles, but also clumsy ox carts, creaking and groaning with their heavy loads, dusty wayfarers on foot, caravans of camels and donkeys, horsemen from the hills, and now and then an elephant, perhaps carrying some native prince.

Although it is not yet noon, the thermometer registers more than 90°, for this is the hot, dry season. A scorching west wind is blowing. On both sides of the road, flat lands, checkered with many unfenced fields, shimmer in the heat and bright sunlight as far as the eye can see. Patches of stubble



Methodist Prints

Figure 201

show where winter wheat has just been reaped, but much grain stands ripe for the sickle. Fields where cotton or sugar cane has been planted recently, and others plowed for planting, show brown amidst the yellows and greens of standing crops. Here and there the horizon is broken by trees which fringe a stream or canal, or by clumps of dark-green foliage which shelter little villages.

Farm villages. — Most of the inhabitants of these Punjab villages are farmers. In many of them, the houses of several hundred people are huddled together along narrow streets. Near a village, you probably would see a grazing area for cattle, a well or an artificial pond, or " tank," from which water for drinking and for household purposes is obtained, heaps of manure to be used for fuel or as fertilizer, perhaps a yard for tanning hides, and a threshing floor where oxen tread out the hand-cut grain as in days of old. At some place in the irrigated fields near a village, there commonly stands a platform from which a watchman hired by village farmers guards the crops.

In Figure 191 you see the edge of a village, and part of a water tank. The goats are being driven home for the night from the grounds where they have grazed during the day. In Figure 201 is shown the courtyard of a house in another village. Notice in one corner the pile of manure-cakes, for use as fuel. There are few trees and no deposits of coal in the Indus plains; the getting of fuel is therefore a problem.

Crops and water. — As the description of the April landscape undoubtedly suggested to you, crops are grown in the Punjab both in summer and in winter. As is commonly the case in lands of scanty rainfall, there is, in the

dry months, a large daily range of temperature. In parts of the Punjab, temperatures sometimes drop from eighty or more degrees at midday to the freezing point or lower the following night. Wheat, which is not killed by these changes in temperature, has become the chief dry-season crop of the Punjab. Wheat, rice, and various millets are the chief food crops there. Where canals supply water all the year round, both summer and winter crops are grown. Since wheat is the best money crop, it is most important on such lands. Where the people depend wholly on rainfall, upon the floods of the rivers, or upon canals that are full only in flood time, summer crops are of course of much greater importance than are winter crops. How do Figures 150 and 151 help you to explain this?

Did not the description of Punjab farm villages suggest to you that, in this part of India also, methods of work are primitive? Here, too, many of the people are poor. Farmers are many, and farms are small. However, since many irrigation works have been constructed by the British in the Indus Basin, more than a third of the farmland of the Punjab is irrigated and the danger of famine there is much less than in the Deccan. Indeed, the Punjab is not thought of as a " famine land," in spite of the fact that it is one of the drier parts of India.

Railroads which the British have built help greatly in marketing products from the Punjab and the Sind. More wheat is raised in Indus lands as a whole than is used there, and the railroads carry much of it to Karachi (Fig. 147) for export. To market crops well tends to make farming more profitable and to relieve poverty. The exported wheat goes largely to Europe. For what two reasons do you think Karachi is a convenient place from which to ship it (Fig. 147)?

Do you not see that the people of these thirsty lands owe much to their rivers, the Indus and its tributaries, to their canals, and to their railroads?

On a rich delta of the Northeast. — At the eastern end of the Great Plain of India is the broad delta formed by the Ganges and Brahmaputra rivers (Fig. 147). In sharp contrast to the delta of the Indus, dry and sandy in most places, this delta is a land of many swamps, dense forests, and green rice fields. The seaward border of the Ganges-Brahmaputra delta is even more forbidding than that of the Indus, but for a different reason. Along the coast are almost countless islands covered with swamp and jungle and inhabited by tigers, leopards, monkeys, pythons, and cobras. Crocodiles infest the waters between the islands. The map in Figure 150 explains the chief contrast between the two deltas.

If you were to fly in an airplane over the Ganges-Brahmaputra delta in summer, you could look down upon great expanses of water, dotted with hundreds of islands. The overflowing streams then submerge the lower lands, and only the higher ground remains above the lake-like waters. In the winter, or dry, season, you would see, instead, a vast plain crossed by many streams.

Villages with their orchards and gardens cluster thickly along the edges of the streams, where so much silt has been dropped that the land is somewhat higher than it is farther back. Many villages also have been built in the lower lands between the streams. To make a " foundation " for a village in lands which are under water part of the year, a " tank " is dug, and around it is piled the earth which is taken out. On this cratered mound, houses are built and gardens planted. Such villages are on islands in the rainy season.

Most of the delta people are farmers. On the rich delta soils, they produce excellent crops of kinds that can stand much moisture. The more important of these, by far, are rice and jute. The times of planting and harvesting rice depend upon the variety that is grown, the amount of water the land receives, and the time during which the water stands

Figure 202 *By courtesy of Wellington D. Jones*

on the land. In many places, rice is planted in seed beds in May or June, transplanted in July or August, and harvested in winter. In some parts of the delta where water covers the ground to a depth of several feet at flood time, a long-stemmed "early" rice is sown broadcast in April. It commonly is harvested in August, oftentimes from boats. On some of the lower lands where water stands for a time after it has drained from the higher ground, rice is planted in October, and harvested in April.

Jute commonly is planted in April or May, and harvested in August or September. A jute plant has a stalk five to ten feet long which branches only at the top, where it bears slender leaves shaped somewhat like those of a peach tree. It is grown for the fiber of the stalk. The leaves are removed from the stalks after they are cut, the stalks are then soaked, and the fiber is scraped from them. The fibers are dried and pressed into bales like those in Figure 202 for shipment.

Sugar cane is raised on some of the delta lands. Figure 203 shows a simple sugar-cane mill which suggests the primitive methods of the farmers. Some lands in this vast delta are used for various other crops. Rice, however, is the great food crop and the one for which most of the delta land is used, while jute is the all-important money crop.

In August, when most of the fields in the

Figure 203 *By courtesy of Wellington D. Jones*

delta are under water, all travel in some parts is by boat. Many farmers then fish in their own fields. They paddle out through the rice in dugout canoes from which they spear fish, catch them with rod and line, or collect them from nets and traps which they have set. Marsh grasses to feed the cattle are carried home by boat. Even in the dry season, travel is largely by water, for roads are almost lacking. Sign posts are set at the intersections of streams to direct travelers.

Calcutta. — The gateway city of the Ganges-Brahmaputra delta is Calcutta, on the Hooghly River (Fig. 147), the westernmost of the many large streams through which the waters of the Ganges and the Brahmaputra reach the sea.

The site of Calcutta is by no means ideal. It is eighty miles from the sea, shifting bars in the Hooghly make navigation dangerous at times, and much dredging must be done from time to time to keep the channel deep enough for large boats. Moreover, Westerners find it hard to stay there through the hot, wet summers. Early British traders, eager to get products to and from the great plain to the northwest, found, where the city now stands, land above the flood level which seemed as suitable as any in the delta for a trading post. When roads and railroads were built from other parts of India to the lower Ganges district, it was easier in most cases for them to reach a city in the western

Figure 204 *By courtesy of Wellington D. Jones*

Figure 205 *By courtesy of Wellington D. Jones*

part of the delta than it would have been to reach one farther east. Do you see why?

Southern Calcutta, like northern Bombay, is a factory district. North of it, adjoining the busy river harbor, is the commercial and business center. The fort, the parks, and many buildings in the heart of the city are western in appearance, but on the streets, as in Bombay, one sees much of the "East." North of the commercial center lies the native city. In Figure 204, you see the Hooghly in the foreground and in the distance a suburb which is north of the native city. The picture suggests that what kind of work is carried on there? Many mills have also been built on the western side of the Hooghly.

The manufacture of textiles from jute is as important in Calcutta as is the manufacture of cotton cloth in Bombay. What have you learned about farming in the Ganges delta which helps to explain this importance of jute manufacture? West of Calcutta, in the northeastern part of the great plateau of Peninsular India, there are mines which supply most of the coal produced in India. This fact helps to explain further the growth of manufacturing in the city.

The heart of India. — Going upstream from the Ganges delta, one comes to the "heart of India," as the part of the great plain between the delta and the Punjab sometimes is called. Thousands of villages dot the almost level lands which stretch from river to river, seemingly without end. Almost every crop grown elsewhere in India can also be raised here. Rice, wheat, barley, millets, corn, sugar cane, cotton, and vegetables all are important crops. Some are grown in winter, others in summer. Some are raised without the aid of irrigation, while others, as the view in Figure 205 shows, are irrigated. The proportion of land which is irrigated, however, is less than that in the Punjab. How does the map in Figure 150 help to explain this? You should think of the heart of India as, above all else, a land of varied crops.

The heart of India also is a land of cities. How many large cities do you find in it on the map in Figure 147? Most of them are ancient river cities which are trade centers for the millions of people who live in this land of many crops. For centuries the Ganges has served as a great highway. Thousands of boats ply its waters, carrying people and commodities to and from the cities along its banks. Most of these cities, unlike Bombay, Rangoon, and Calcutta, are chiefly oriental in aspect.

Many changes are taking place in these cities of the middle plain. Doubtless the old city walls, with their interesting gateways and native buildings, would attract

your attention more than the modern factories and business buildings which suggest western influence. Along the narrow, balcony-shaded streets, lined by the booths of native craftsmen, and at fairs and festivals to which people throng from afar, one may weave his way through motley crowds such as can be seen nowhere save in India. Dark-skinned, turbaned natives of the plain, fairer men from " the hills," cultured, well-dressed Hindus of high " caste," veiled Mohammedan women, and beggars who cry aloud for alms, are among the peoples of many kinds and callings who mingle there. Numerous temples, mosques, and tombs, some merely gaudy, others of rare beauty, are striking reminders that India is a " land of religions " (p. 211).

The land between the Ganges delta and the Punjab contains about a third of India's people and much of the agricultural wealth of the country. Its location is central with regard to the Khyber, the Indus delta, Bombay, and Calcutta. In it are India's chief religious centers. These facts have won for it the name already noted, " the heart of India." The British have chosen as the capital of British India the city of Delhi (Fig. 147), which lies in the western part of the middle plain.

Summary Exercises

Reading maps. — On the map in Figure 147, find the island of Ceylon, near southern India. Ceylon is controlled by Britain, but its government is separate from that of India. Except in the matter of government, however, Ceylon may well be thought of as an island part of India. Notice that you might go from Calcutta to Colombo by rail, except for a trip of about twenty miles across the strait between Ceylon and the mainland (Fig. 147). From facts which you can read about Ceylon from the maps in Figures 7, 147, 150, and 151, should you expect Ceylon to be much like any part of India which you have studied? If so, what part? Give reasons why you decide as you do.

The picture in Figure 206 was taken in Ceylon. Had the maps helped you to picture scenes somewhat like this one? What things shown in the picture illustrate or suggest facts which you have read from the maps?

Ceylon is not only another land of rice and coconuts, but also one famous for its tea plantations. Recalling the conditions which favor the raising of tea (p. 171), what facts about Ceylon which you have read from the maps help to explain the importance of tea culture there?

Matching relationships. — Write a group of two or three striking geographic relationships which apply to Burma, a group for Baluchistan, and others for the Deccan, the coastal lowlands of southern India, the Punjab, and the eastern end of the great plain. One pupil might read to the others one of his groups of relationships, without telling what part of India he had in mind in writing it, and then call on some other pupil to name the part of the country to which the group applies. If the pupil called upon names the part the leader had in mind, he may become leader, may read one of his groups aloud, and call on someone to name the part of India to which it applies. Proceed in this way till many groups of relationships have been " matched."

More about mining. — About what two mineral products of India have you read in the preceding pages? What does the graph in Figure 207 show about the importance of these two as compared with other mineral products of India? Manganese and gold are mined chiefly in the Deccan. Of the 316,000,000 people in India, more than 229,000,000 are engaged in agriculture, while fewer than 600,000 are engaged in mining.

Things to explain. — 1. Does the graph in Figure 207 show that iron ore is among the leading five mineral products of India, or not? Iron ore is mined and smelted in considerable quantities, however, not far west of Calcutta. Practically all the manufacturing of iron and steel in India is centered in a few places near the northeastern edge of the Deccan. In addition to its deposits of ore, what advantages has this part of India for the manufacture of iron?

2. What reasons can you now give for the following facts?

(1) The chief exports of India are cotton and cotton manufactures, jute, and food grains (chiefly rice and wheat). By value, they together make up about two-thirds of all Indian exports.

(2) The chief import of India is cotton cloth, the value of which is about a third that of all the imports. Among other important imports are iron and steel, machinery and railroad equipment, and hardware.

(3) Much Indian cotton is exported to Japan.

Figure 206

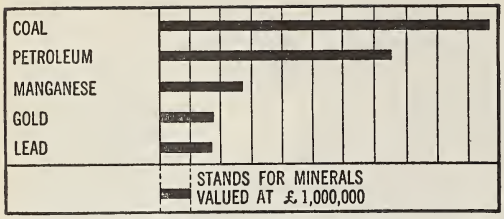


Figure 207. Leading products of Indian mines, by value

Benefits. — List all the benefits you have found which have come to various parts of India through the work of the British.

In considering the benefits which have come to the British through their work in India, it is helpful to think of India as a "great market," as well as a "great producer."

Since India has so many millions of people, it affords a huge market for any goods which a large part of its people want and can afford to buy. Even the poorer people buy a little cotton cloth for clothing, and the amount used by the total population is enormous. Britain accordingly found in India a vast market for cheap Manchester goods.

Suppose something could be done which would make many millions of people in India less poor. How would this affect the market for the things these people would buy? Do you not see that it is to the interest of British sellers to aid the people of India in becoming prosperous? By buying wheat, cotton, and jute from them in large quantities, the British were, in the first place, getting needed supplies. Secondly, they were helping many of the Indian people whose crops they bought to earn more than formerly. In the third place, the British increased their market for manufactured goods by improving conditions for the Indian people.

Changing conditions. — Although various benefits have come to India through the work of the British, many people feel that Britain now has too much control there. Some of the people of India are highly educated. It is thought that they could so manage the affairs of the country that India would profit in some ways even more than it now does from the improvements that have been made in the land. From time to time you doubtless will read newspaper and magazine accounts of changing conditions there. The things you have learned about Britain and India will help you to see how changes that take place will affect the lives of the people of both countries.

A map to be explained. — The "native territory" shown on the map in Figure 208 consists of the parts of India which are controlled by the British through

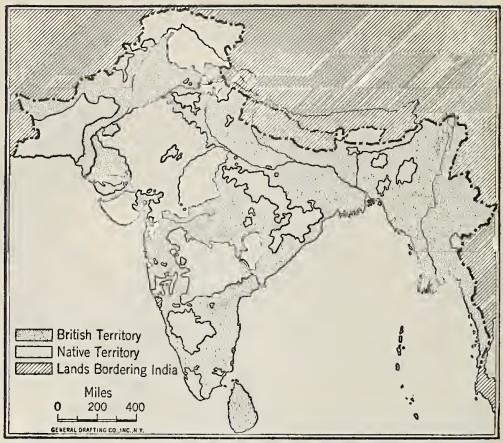


Figure 208 *Reproduced from Philips' Senior School Atlas, by permission of Messrs. George Philip and Son, Ltd., London*

native princes or chieftains. The other parts are governed by the British directly. Are the lands of the Ganges delta native, or British, territory? Those of the Punjab? The densely populated, productive lands of the Ganges delta afford excellent opportunities for trade. In the Punjab, direct government has been of advantage to the British in making improvements which increased trade. In some other parts of India, the commercial opportunities which existed or could be created have not been so promising as in the delta lands and the Punjab, and the direct government of such parts has been of less importance to the British. Explain, in so far as you can, the facts shown on the map in Figure 208 about other parts of India.

"Traveling in Eurasia." — To play this game, stand in two rows as for a spelling match. The "pronouncer" says, for example, "My train goes to B," and calls on the person at the head of one of the rows. That pupil should reply with the name of any Eurasian city which begins with "B" and should name also the country in which the city is located. When the pronouncer begins his statement with the words "My *ship* goes," a *seaport* should be named. "Bombay, India," "Bordeaux, France," or "Birmingham, Britain," then, would be a correct answer if the pronouncer said "My train goes to B." If he said, instead, "My ship goes to B," Birmingham, Britain, would of course be wrong and either of the others would be right. If a pupil "misses," he takes his seat, and the person next in turn, as in a spelling match, may answer. The side wins which has the greater number of people standing at the end of the game.

Directions for map study and reading. — 1. Find French Indo-China, Siam, Malaya, and the Dutch East Indies on the map in Figure 147. Of these lands of southeastern Asia, only Siam is independent. Malaya is owned or controlled by Great Britain, and the others belong to France and the Netherlands, as their names suggest.

2. By comparing the maps in Figures 7 and 147, locate these countries on the population map. Make a list of the questions which the population map suggests to you about the distribution of people in these countries. Do not fail to include in your list a very striking fact about the density of population in the Dutch East Indies. How many cities are there in Java with a population of more than 100,000 each (Fig. 147)? How many in the other Dutch islands? In each of the other countries of southeastern Asia? Do you think the map in Figure 147 helps to answer any of the questions you listed? If so, which ones, and how?

3. Where in these countries are there lands which receive considerable rain in both summer and winter (Figs. 150 and 151)? Where in them does much less rain fall in winter than in summer? What other countries or parts of countries that you have studied does the last question recall?

4. From the latitude of these countries (Fig. 147) what would you expect about summer temperatures on their lowlands? About winter temperatures there?

5. How many things can you find in the pictures, Figures 209–214, which indicate high temperatures? Which suggest much rain?

6. Since the lowlands are both warm and well-watered, what food crop would you expect to find extensively grown on them?

7. In general, what kind of natural vegetation would you expect to find on the uncultivated lands? Why?

8. Using your maps or a globe, find the shortest sea route between Kobe and Calcutta. Between Shanghai and Bombay. Between Hongkong and Marseille. Between any three other ports of eastern Asia that you may choose and any three ports of Europe that you may care to pair with them. Through what strait of southeastern Asia do all the routes that you found pass (Fig. 147)? What city at the eastern end of the strait is on all of them (Fig. 147)? This city has been called "the gateway of the Far East." Does that seem to you to be a good name for it?

9. As you read the following paragraphs, check as far as you can your answers to the questions you have just studied.

At the turning point of Asia. — Close to the tip of the Malay Peninsula, there is a small island which, little more than a century ago, was inhabited only by a few fishing people. At that time a far-sighted Englishman induced a native ruler to cede the island to Great Britain. It was mostly covered with jungle, its climate was very hot, and it probably seemed of little value. On the southeastern side of the island there stands to-day the city of Singapore, with a population of about 400,000. The growth of Singapore has been due, above all else, to its position at a turning point on one of the great seaways of the modern world. As you discovered in your map study, the shortest sea route between any port of eastern Asia, on the one hand, and any port of southern Asia or of Europe, on the other, is by way of Singapore. The growth of the city has been aided, too, by the fact that the British made it, like Hongkong, a "free port." Chiefly for these reasons, Singapore has become one of the greater commercial centers of the Far East. Its harbor is frequented by ships of every maritime country, its miles of wharves are thronged with workmen, and in its streets mingle people from lands both near and far. The variety of races represented in the city is suggested by the fact that no fewer than fifty-four languages and dialects are recorded and interpreted in its local Courts. Because of its position and its trade, Singapore is now one of the great outposts of the British Empire, and scores of millions of dollars are to be spent there upon huge dry docks, powerful forts, and other modern works.

Figure 209 © Ewing Galloway

Rubber. — In the harbor of Singapore one might see an ocean freighter taking on boxes of rubber, or perhaps a " tanker " into which *latex* was being pumped through long pipes from tank lighters alongside. Latex is the milky juice of the rubber tree, from which rubber is made. Plantations comparatively near to Singapore, in Malaya, Sumatra, and Java, furnish about four-fifths of the world's supply of rubber.

Rubber trees require a warm, moist climate. They do not thrive where there is a marked dry season unless the soil retains moisture well for their use at that time. Though southeasternmost Asia, like China and India, has seasonal, or monsoon, winds, there are parts of it where, as you have found, considerable rain falls in winter as well as in summer. Do you see now that the great rubber-producing areas are in such places? In either season, moisture-bearing winds from the sea on one side of them or the other bring rain to Malaya, Sumatra, and Java. In Java there are occasional droughts, and partly for this reason rubber plantations are less extensive there than in Malaya and Sumatra. A special advantage to the rubber industry in these rainy lands is that most of the showers occur in the afternoon, leaving the mornings clear for gathering the latex.

Figure 210 By courtesy of Della Olson

Rubber planters avoid districts having frequent morning rains. They also avoid places where strong winds blow, for the rubber tree is brittle and easily damaged. Rather low, sheltered, gently rolling land is preferred.

Figure 209 shows part of a rubber plantation near Singapore. Some of the younger trees in the background, those producing least latex, will be cut down from time to time, in order to give the better producing trees plenty of light and air. Finally there will be only some seventy or eighty trees to an acre. Most of the land occupied by the rubber plantations formerly was covered with jungle, and so had to be cleared for planting. The rubber trees usually are grown from selected seeds in nurseries, and are transplanted as saplings to the cleared fields. They grow rapidly, and " tapping " begins about the fifth or sixth year, when the trees have a girth of some twenty or twenty-five inches a few feet above the ground. Tapping consists in removing very thin shavings of bark with a sharp knife or similar tool. Figure 210 shows a pattern of

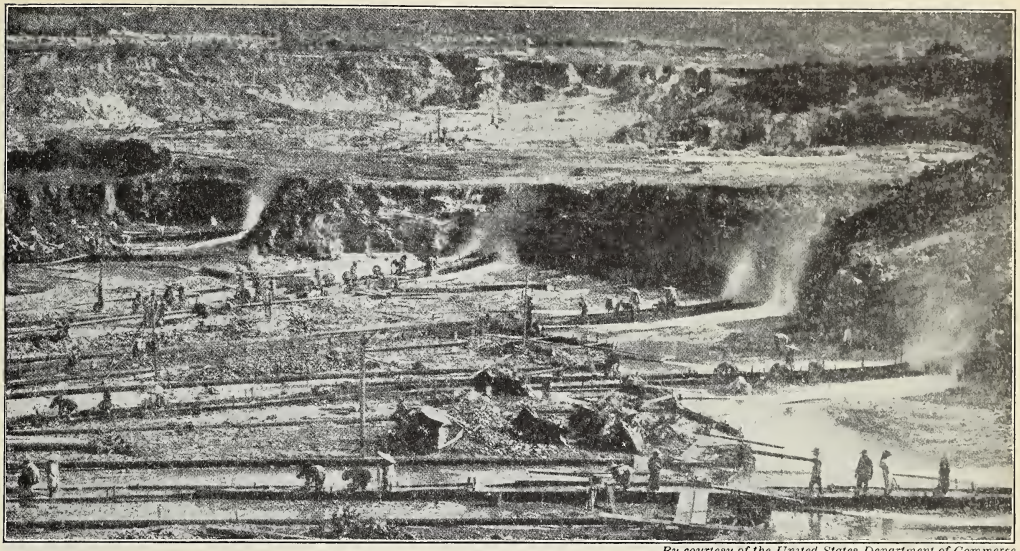


Figure 211

By courtesy of the United States Department of Commerce

" cuts " on a mature tree. When these cuts were made or later reopened, the white latex at once oozed forth and ran down along the vertical, or " backbone," cut to the metal spout fixed into the bark near the ground, from which it dripped into the little cup. Perhaps you can see on the right-hand side of the trunk sloping strips that were previously tapped. Bark is being renewed on them, and, when it is old enough, it can be tapped again. Tapping usually is done on alternate days, and always in the early morning. The latex is collected in pails before noon, as the man is doing in Figure 209, and is taken to the plantation " factory," where it usually is strained into big jars in which it is thickened, or *coagulated*. Later it is taken out of these, the surplus water is squeezed out of it by machinery, and the resulting sheets are dried and cured. The rubber then is packed in boxes and shipped. Recently some latex has been exported in tank steamers, as you have read. A rubber tree, if properly treated, can be tapped for twenty-five or more years.

Tin. — One also might see tin being loaded upon ships at Singapore, and might visit there the largest tin smelter in the world. In the great smelter metallic tin is obtained from tin ore brought by railroad or by boat from shipping points near the mines. These are in the southwestern part of the Malay Peninsula and on three small Dutch islands southeast of Singapore. Most of the mines are open pits more or less like the one shown in Figure 211. Do you remember how in some parts of western United States streams have " mined " gold in the mountains and carried it down to the lowlands, depositing it there along with sand, gravel, and other material (*United States and Canada*, p. 40)? In a similar way streams have " mined " tin ore in some of the mountains not far from Singapore, and have deposited it, along with sand, clay, and other earth, on the neighboring lowlands. Do you also remember about the " hydraulic mining " of gold in Alaska (*United States and Canada*, p. 248)? It is hydraulic tin mining that you see in Figure 211. The tin-bearing ground is being broken down by water brought from the hills or mountains in long pipes and thrown in jets from great nozzles. The water also is made to wash the loosened material into the long troughs or sluices in the foreground, where the tin ore is being separated from the useless earth by Chinese coolies. The ore is taken to the nearest railroad town or harbor,

Figure 212

for shipment to a smelter. Malaya has long been the chief source of the world's supply of tin.

Rattan. — An especially interesting kind of work which may be seen at Singapore is suggested by Figure 212. This scene is in a rattan-stripping yard near the city. The workmen are cleaning the flexible, rope-like pieces of rattan by drawing them back and forth in crotches formed by fastening sticks on short stakes driven into the ground. The rattans are creeping or trailing plants which grow wild in the forests of the Malay Peninsula, the mainland farther north, and the Dutch East Indies. The young plants are erect at first, but the fast-growing stems soon need support and attach themselves to tree trunks or other objects by means of the hooked thorns with which they are armed. Rattan stems grow to an enormous length, in many cases climbing over the very tops of the taller forest trees. They are cut off near the ground, pulled away from the supports to which they were attached, stripped of their leaves, cut into convenient lengths, and taken by water or rail to Singapore or some other rattan-working and shipping center. Rattan is so light, flexible, and strong that it is in wide demand for many purposes, such as weaving furniture and baskets.

Two rice countries. — For what crop do you think the land in Figure 213 is being plowed? Why do you think as you do? Rice is the great food crop of both Siam and French Indo-China. When you compared the maps in Figures 7 and 147, did you notice where the population is densest in these countries? On the great flood plains and deltas of the Menam, Mekong, and Red rivers, and on the narrow lowland which borders the South China Sea between the Mekong and the Red, the soils are rich and irrigation is easy.

Figure 213

By courtesy of Della Olson

There most of the rice is grown, and there most of the people live. In both countries rice is not only the great food crop, but also the great money crop. By value, it makes up about four-fifths of the exports of Siam and more than two-thirds those of French Indo-China. As you might now expect, too, rice-milling is the leading manufacturing industry in both countries. Of course, other things are produced in these monsoon countries, such as sugar and bamboo, but above all else both may be remembered as rice-growing lands. What other monsoon land do rice, sugar, and bamboo recall (p. 193)?

The mountains of Siam and French Indo-China are heavily forested, and in the north and northwest, near Burma, the forests contain an abundance of teak. In Siam, as in Burma (p. 208), elephants are used to move the heavy logs to the streams. When the spring and summer rains swell the streams, the logs are floated on bamboo rafts down the Menam to sawmills at Bangkok (Fig. 147).

A crowded island. — Java has almost seven hundred people per square mile, more than any other area of equal size in the world. Its 35,000,000 inhabitants outnumber those of New York State three and one-half fold, although the island is not much larger than the state and the great majority of its people are farmers. It contains nearly three-fourths of all the people of the Dutch East Indies, but only about one-fifteenth of their land. The following three things help to explain Java's amazing population. (1) Food can be produced there for hosts of people, for the soils are almost everywhere very rich, there is plenty of rain and also abundant sunshine (p. 224), and the lowlands always are warm. In many places three crops are grown yearly. (2) The natives of Java are industrious and live cheaply. Their needs are few in their

Figure 214 © Ewing Galloway

favored island home, and as yet their wants are simple. (3) Finally, the Dutch in later years have greatly improved many crops in the island, have built railroads and good highways, have constructed irrigation works, and have promoted public health. In these and other ways they have done much to help make possible the seven-fold increase in the population of the island that has taken place during the last hundred years.

Upon the plains of Java, dotted with palms, bamboos, banana and other fruit trees, and with hundreds of villages of thatched huts, such crops as rice and sugar cane are grown. How many of these things can you find in the picture in Figure 214? Wherever on the mountain slopes water can be had for irrigation, rice also is grown, up to heights of 3000 or more feet, on terraced plots. Above the zone of rice there are fields of such crops as corn, potatoes, vegetables, and tobacco, many of them on slopes that are surprisingly steep to be tilled. Some of the rough mountain land at heights of 5000 feet and more in western Java is used for tea plantations and plantations of cinchona trees. It is from the bark of the cinchona tree that quinine is obtained, and Java produces almost all the quinine in the world. Above the mountain fields and plantations, dense forests clothe the slopes. The many mountain peaks of Java are volcanoes, and it is from volcanic rocks that the fertile soils of the island have been formed.

The volcanic soils are particularly suited to the cultivation of the cassava plant, from which tapioca is made. Cassava root is a native food throughout Java. Pepper, cloves, and other spices are grown in Java, though to less extent than in some of the other islands. Coconuts, too, are grown there, as well as on all the other principal

islands and in places along the mainland coast. Do you remember from your study of the Philippine Islands the chief commercial products of the coconut (*United States and Canada*, p. 252)? Java produces many things both for use at home and for sale oversea.

Backward islands. — The Dutch have centered their colonial efforts chiefly upon Java, and, save in parts of Sumatra, the agricultural possibilities in their other islands are little developed. These islands are covered for the most part with primeval forests, whose deep recesses have yet to be fully explored. Savage head hunters live in some of them. The mineral resources of the islands probably are great, though little developed. In later years petroleum has been produced in Dutch Borneo and Sumatra, as well as in Java.

More about Singapore. — As you now should confidently expect, many commodities besides rubber, tin, and rattan enter into the trade of Singapore. Hundreds of little ports, some on the mainland, others on the islands, send raw materials and foodstuffs to Singapore in small steamers and junks which return thence with manufactured goods. Of the leading raw materials and foodstuffs you have read. The manufactures taken in return include cotton goods, cigarettes, iron and steel, machinery, hardware, and utensils. In all the countries of southeastern Asia, as you might well expect, cotton goods are the chief imports. It would be a great mistake to suppose, however, that Singapore has a monopoly of this export and import trade. For example, most of the rice shipped from Siam and French Indo-China goes in the small boats by which their comparatively shallow rivers can be navigated, not to Singapore, but to Hongkong. This is because most of the rice which they export is consumed in China (p. 192). Similarly, some raw sugar from Java and most of that exported by Siam and French Indo-China goes to Hongkong refineries (p. 204). Moreover, the plantation products of Java and Sumatra are shipped for the most part directly to consuming countries, or are marketed through Amsterdam and Rotterdam (p. 115). Most of the imports of these islands, too, are received independently of Singapore. Nevertheless, more than half by value of the imports and more than a fourth of the exports of southeastern Asia in a recent year were handled by Singapore commercial houses. Singapore is the principal port of this part of the continent, and "the gateway of the Far East."

Summary Exercises

1. Did you find statements in the text which helped you either to answer your questions about the distribution of population in southeastern Asia (p. 223, paragraph 2), or to check the answers which the map in Figure 147 suggested? If in any case you did not, you perhaps can now find facts on the map that will help you to answer the question. For example, did you write a question about the long, narrow area in French Indo-China which has fewer than sixteen persons per square mile? How does the map in Figure 147 help to explain its sparse population? In view of what you find on the map, what statement on page 227, column 1, helps further?

2. You have learned that tin and rubber are leading items in the trade of Singapore. Can tin enter into its trade for an indefinitely long time (*United States and Canada*, pp. 69–70)? Why? Can rubber? Why?

3. Singapore has been called "a Chicago of the seaways." Do you see any reason for this statement? You will be aided in answering this question by recalling how Chicago was helped by Lake Michigan to become a great railroad center (*United States and Canada*, p. 209), and why Singapore became a great seaport (p. 223).

4. What things do you use in your daily life which may represent products of southeastern Asia? Think, for example, of the many things you use that are made of rubber. The freighter which you saw loading rubber at Singapore may well have sailed to New York, for this country imports between two-thirds and three-fourths of the world's production of rubber.

5. Write for your notebook a summary statement of geographic relationships in Java or Malaya.

Figure 215

© Ewing Galloway

THE LAND OF THE FIVE SEAS

Old acquaintances. — On the map in Figure 147 you should be able quickly to find, in southwestern Asia, some "signs" which you learned from much simpler maps in *Journeys in Distant Lands*. What are they? Even if they were not named on the map in this book, would you not have recognized at once the signs for the Tigris and Euphrates rivers? Those for Basra and Bagdad? What do the signs for these rivers and cities recall to you about the houses, trees, animals, people, kinds of work, and scenery in Mesopotamia (*Journeys in Distant Lands*, pp. 1–24)? Do you remember that Mesopotamia and the surrounding countries are together sometimes called "The Land of the Five Seas" (*Journeys in Distant Lands*, p. 23)? What are the names of these seas? Find from the map in Figure 147 what countries make up this land.

Population, rainfall, and work. — 1. What does the map in Figure 7 show about the general density of population in The Land of the Five Seas? Is this what you should have expected for part of it, at least, from your study of Mesopotamia? If so, why? Do facts shown by the maps in Figures 150 and 151 agree with your reason? From those maps find what parts of The Land of the Five Seas receive most rain. What does the map in Figure 7 show about these sections of heavier rain?

2. In what ways should you expect to find most land used in Persia, Arabia, Palestine, Syria, and Asia Minor? The facts shown by the maps you have just examined and your earlier study of Mesopotamia should aid you in answering this question. What do you think determines, in most places, whether or not farming is possible? Do you think irrigation may be practiced in some places where water for the purpose cannot be had from streams? If so, how? What kinds of animals do you think the herdsmen of the pasture lands probably rear?

3. What river in The Land of the Five Seas do you know to be an important highway (*Journeys in Distant Lands*, pp. 1–6, 8)? What does the map in Figure 147 suggest about the *number* of river highways there? Are there many or few important railroads in the area (Fig. 147)? Why is this what one might well expect? What, under these circumstances, should you expect to be the chief means of travel and transportation? Would it not be that shown in Figure 215?

4. Would you expect The Land of the Five Seas to be important commercially? Why? Important industrially? Why?

As far as you can, check your answers to the preceding questions as you read further about The Land of the Five Seas.

Bridge countries. — Find The Land of the Five Seas on the map in Figure 4, and notice that by it Europe, Asia, and Africa are joined together. You may think of that part of The Land of the Five Seas which lies between the Red Sea and the Persian Gulf, on the south, and the Black Sea and Caspian Sea, on the north, as forming a great *bridge* which connects the remainder of Asia with southeastern Europe and with Africa and which also connects Europe and Africa. Of course the western end of the peninsula of Asia Minor, which looks upon the map especially like a broad bridge planted between the Black Sea and the eastern Mediterranean, is separated from Europe by the waters which connect those seas, but these waters are very narrow in places and are not difficult to cross.

In early times, as now, there was an active trade between Egypt and Asia and between western Europe, on the one hand, and India, China, and parts of Southeastern Asia, on the other. For a long time this trade was carried on almost entirely by land, for ocean navigation had not been developed and no seaway from Europe to the Far East was known. Many caravan routes accordingly crossed the great bridge formed by The Land of the Five Seas. As skill in seamanship increased and better boats were built, more and more trade was carried on by water, but The Land of the Five Seas retained its importance as a "land of passage." With respect to trade by sea between Europe and the Far East, it was long a barrier that had to be bridged by caravan. Eastern goods brought by boat to the head of the Persian Gulf, for example, were taken northwest by camel across the desert to some port at the eastern end of the Mediterranean, there to be loaded again upon ship. Only when an all-water route from Europe to India was found at the close of the fifteenth century did The Land of the Five Seas cease for a time to be on the principal way between the West and the East.

The importance of the bridge lands in connection with commerce between the West and East helped to give them importance in other ways. Various powers at different times struggled for control of leading routes, for such control promised wealth and leadership. Now and again, through centuries, parts of the bridge lands were battlefields between ambitious rivals. Across them at times European ideas and culture were carried far to the East, while by the same routes something of the art and civilization of the East found its way into Europe. In The Land of the Five Seas itself there originated and spread, both west and east, much that enriched civilization. Thus Palestine gave the Christian religion to the world. At different times in history, too, conquerors from the grasslands and deserts of the bridge countries, driven out by want or inspired by religious zeal, founded far-reaching empires which endured for varying periods.

In later days, The Land of the Five Seas has again become of much importance to the world of commerce. Because of the opening of the Suez Canal somewhat more than a half-century ago, it is now bordered by the shortest sea route between western Europe and the Far East, that by way of the Mediterranean and Red seas (p. 163). Upon the northwest, also, it is bordered by a sea-

Figure 216

way much used by commerce. Find on the map in Figure 216 the names of the waters through which you would pass in sailing from the Black Sea to the Aegean Sea, a great arm of the Mediterranean. Upon the shores of the Golden Horn, a small branch of the Bosporus, grew the great city of Istanbul. As the map in Figure 216 suggests, Istanbul is in a position to control the outlet of the Black Sea, if permitted to do so, and largely for that reason it has played an important part in the rivalries of various powers. Most of Turkey, of which Istanbul is the one large city, is in Asia Minor (Fig. 147).

Notice on the map in Figure 147 the railroad which runs from the shore of the Bosporus, opposite Istanbul, southeast to northern Mesopotamia (Iraq). This road is to be extended to Bagdad, from which a railroad already has been built to Basra. There, at the head of ocean navigation on the Shat-el-Arab, connection is made with ocean shipping (*Journeys in Distant Lands*, p. 2). When completed, this railroad will contribute much to the renewed importance of this ancient bridge land. The Land of the Five Seas now is crossed, too, by an important airplane route from Europe to India, by way of Damascus, Bagdad, and Basra (Fig. 147).

A fringe of coastal farmlands. — On the lowlands and seaward slopes which border the Mediterranean, Aegean, and Black seas in Palestine, Syria, and Asia Minor, much of the land supports a fairly dense population (Fig. 7). It can do this because it is farmed, and, in contrast with most of The Land of the Five Seas, it can be farmed because it receives enough rain for crops to grow (Figs. 150 and 151). When winds from the Mediterranean and Black seas blow over the land, they are forced by highlands near the coast to give up much of their moisture, but farther inland very little rain falls. The desert land shown in Figure 215 is less than forty miles from the Mediterranean, but it is on the landward side of the highlands, well below their crest. Only a few miles here separate farmlands and desert wastes. In northern and southern Asia Minor the rain-catching mountains also are near the coasts, and the farming belts there are narrow. In western Asia Minor, on the other hand, the belt devoted chiefly to farming is comparatively wide, for there the elevation of the land increases less rapidly from the western coast and broad valleys lead inland.

Except along the shore of the Black Sea, the coastal farmlands of Palestine, Syria, and Asia Minor unfortunately receive no rain in summer (Fig. 150). Nor in general is the period and amount of the winter rains (Fig. 151) at all certain. If they do not begin soon enough for autumn-sown grains to get well started before winter weather suspends their growth, these crops may fail. They may fail, too, if the rainy period ends in spring before the plants are sufficiently advanced. Naturally, the farming people watch eagerly for the coming of the rains.

In *Journeys in Distant Lands* you read of certain crops grown near the eastern coasts of the Mediterranean. Do you remember what they are? If not, what crops does your knowledge of farming in other Mediterranean lands lead you to expect would be grown there? In various places on lowlands near the sea, places where water may be had

Figure 217 *Methodist Prints*

for irrigation, there are well-kept groves of orange and lemon trees. Olives and figs are important money crops. Olive trees are grown here and there on many of the warm, dry hillsides and mountain slopes at all levels below the elevations at which spring frosts are likely to occur. Even a light frost in spring is fatal to the crop for that year. The fig trees grow best in heavy, fairly moist soils, and in places where they receive abundant sunshine. Such conditions are found on the bottoms and lower, south-facing slopes of many valleys. Hundreds of thousands of tons of olives and of figs are grown yearly in these lands. Grapes are grown more widely than either olives or figs — on mountain slopes, in valleys, on the coastal plains — and the preparation of raisins is an important industry. Tobacco is the greatest money crop of Asia Minor, and the Turkish leaf is highly prized in many lands for making cigarettes. Wheat and barley, as you should expect, are everywhere the leading grain crops. They are sown in the fall as soon as the rains begin, and in many places are harvested before the end of May.

Farming is carried on for the most part without modern tools and in more or less primitive ways, as illustrated by the picturesque plowing scene in Figure 217. Little or no irrigation is practiced, except in growing citrus fruits. The houses in most of the farm villages are built of mud-bricks or stone, as timber is scarce in most sections. In some places near the coasts of Asia Minor, however, there are wooden houses with red-tiled roofs. Forests there still occupy some of the rough, high, rain-catching slopes, and logging is done upon a small scale. The rainier mountain slopes of Syria once supported splendid forests, but these were almost wholly destroyed long ago.

Most of the seaports, through which the money crops are largely exported and foreign goods are imported, have poor harbors. What section appears from the map in Figure 147 to have most harbors and the best ones? Midway of the irregular western coast of Asia Minor is the city of Smyrna. It has a fairly good harbor, formed by the "drowning" of the end of a valley. This valley affords an easy route up to the interior plateau, and is followed by an important railroad (Fig. 147). With the help of these advantages, Smyrna has become, next to Istanbul, the leading city of Turkey.

The use of land in Arabia. — The coastal farmlands about which you have just read form only a narrow fringe, upon the west and northwest, to the vast grasslands and deserts which make up most of The Land of the Five Seas. Even in Arabia, however, most of the people are farmers. This is just another way of saying that most of the people live on the small fraction of the land where there is enough water for farming. In general, farming can be carried on in the peninsula only in widely scattered places where by digging wells water can be found for crops

and trees. Many of the oases are on the floors of " wadis " or in basin-like depressions, where the depth to water in the ground is less than it is under the higher surfaces. The wadis are valleys without streams save for brief intervals after the infrequent rains.

In most places in Arabia, water cannot be had for irrigation. Most parts are very dry because at all seasons the winds which blow over them have come from other lands without crossing wide seas. In some areas grasses and desert scrub furnish food for goats, sheep, donkeys, and camels. Fine horses also are reared in certain districts. In spring, the pasturage, revived by the light rains of winter, may be fairly abundant. In late summer and autumn, the herdsmen must keep their animals almost constantly on the move to find enough food. The pasturage near the wells where water can be had for the animals may all have been eaten, and everywhere the grass and herbs that remain have been withered by the long drought.

Much land in Arabia does not afford even thin pasturage. There are great stretches of gravel-covered land, dreary wastes of hard, naked rock, and far-reaching tracts of wind-swept sand, in which no one lives. Indeed, in the southern part of the peninsula there is a sandy desert five hundred miles or more wide where no one even travels, for it receives a shower only once in several years and there is scarcely a place within it where drinking water can be had. It is called the Ruba el Khali — " the terrible emptiness."

Almost everywhere in Arabia, alike in the oases and on the lonely pasture lands, the people are faced at every turn with the problem of water. In numerous ways they must adjust themselves to the conditions brought about by the meager rainfall. The nomadic herdsmen lead especially hard lives, and enjoy very few comforts. No wonder that at times they have pushed their way into Palestine, Syria, and Mesopotamia, in search of better opportunities, that raids are common, or that in times past Arabian hosts have invaded more favored lands both east and west (p. 231).

To the heart of Arabia by caravan. — A visit to one of the larger towns in the heart of Arabia would be interesting, but by no means easy. Probably you would land for the purpose on the western coast of the Persian Gulf, at one of the small ports that are occasionally visited by boats which bring rice, coffee, tea, sugar, spices, woolen and cotton piece-goods, and empty kerosene-oil tins, and take away dates, skins, and butter. The empty tins will be packed with dates or butter for export. Fortunately a caravan laden with some of the goods landed from the ship on which you arrived is soon to depart for the town in central Arabia which you are to visit, and you may arrange to accompany it.

You are given your choice between a camel and a donkey to ride, and choose the donkey partly because it will be surer-footed on some of the rugged slopes which you must cross. After an early breakfast of rice, mutton, dates, and coffee, which later you discover are staple foods of the country, the animals are loaded and watered, the water skins are filled, and the long caravan wends its way westward. Some of the animals carry merchandise, others camp equipment and food. The very first day difficult country is encountered, and only twenty-five or thirty miles are covered. You soon find this is about the average rate of travel. Although the caravan moves slowly, you welcome the midday rest, and eagerly seek the shadow of some ledge of rock or other object, for it is late spring and the sun, which is almost overhead at noon, shines fiercely from a cloudless sky. Equally welcome is the signal to pitch camp for the night. The pack animals are unloaded and put out to graze, material is gathered for the camp fire, dried dung often being the only fuel to be found, and the low, black, camel-hair or goat-hair tents are put up. You sleep under blankets, for even at this season the nights are cool.

At long intervals your caravan passes a village in an oasis. In some, the low houses are built of rough-hewn stone; in others, of sun-dried clay. Groves of date palms and small fields of vegetables, wheat, barley, and clover occupy at each oasis all land that can be irrigated. You meet a small flock of sheep being driven to some village for the next market day. Now and again you cross the tracks of grazing camels. On one occasion the caravan reaches a well late in the afternoon, but, having watered the weary animals and filled the water skins, you push ahead some miles before

Figure 218 *Methodist Prints*

camping for the night. The leader of the caravan tells you that the Arab rule in the desert is "drink and make room for others," and that he never camps near a well unless it is close to a settlement. In this land of little water, wells attract robbers no less than honest men, and a sleeping caravan may find itself at the mercy of an enemy. Coming several days later upon an encampment of friendly nomads, you have a chance to see the work shown in Figure 218. These people are churning butter from sheep's milk or camel's milk in a skin bag. Later, the butter will be heated to prevent its becoming rancid. It can then be kept for a very long time. Such butter is almost the sole luxury of the nomads.

As you reach the crest of a ridge one afternoon, the leader points out in the distance the town for which you are bound. At first you see scarcely more than the white dome of a mosque towering above the groves of date palms, which form an island of green in the midst of the desert. On closer approach you find that this town, like the small villages you passed, is surrounded by walls of sun-baked mud bricks, and you enter as night falls.

Many things in the town you are visiting reflect the character of the land. The houses are built of sun-dried clay, and have flat roofs laid on tamarisk branches that are supported by beams made from the trunks of palm trees. The market place is the center of the business life of the town, which is a collecting and distributing place for a large district. Round about the town are the palm groves, gardens, and grain fields of the big oasis. Water for irrigation is drawn in goatskin buckets from wells more than fifty feet deep, hewn out of solid rock.

The Pilgrims' Road. — Some of the desert tracks are used much more than the one you followed. Each year, for example, thousands of Mohammedans follow the "Pilgrims' Road" southward from Damascus to Medina and Mecca (Fig. 147), the Holy Cities of Islam. Mecca was the birthplace of Mohammed, and at Medina he was buried. These cities live on the pilgrim trade.

The queen city of the desert. — Damascus is the oldest "living city" in the world. Long ago it was called "the outlet of the desert track." It also has been called "the queen city of the desert" and "the city that a little river made." A small river which rises on the seaward side, the rainy side, of the mountains which lie just west of Damascus, flows southeastward through the mountains in a deep valley and on into the edge of the desert. Find this river on the map in Figure 147. Round about Damascus, water from the river is used to irrigate vineyards, orchards of fig, apricot, and other fruit trees, and fields of grain. Such a city would have been impossible without this supply of water, and through ages Damascus has been a welcome "outlet" to weary travelers coming from the desert to the eastward.

From Damascus to Persia by motor. — Since 1923 one may "bridge" the desert between Damascus and Bagdad, not in weeks by plodding camel, but by automobile in only forty-eight hours even if the longer of the two motor routes between the cities is followed. This possibility is one of the romances in the history of this land of ancient story. Motor service also has been established between Bagdad and Teheran (Fig. 147), the capital of Persia. In motoring from Damascus to Teheran, you doubtless would choose the longer way to Bagdad in order to pass by the wonderful ruins of the famous city of Palmyra (Fig. 147).

At Palmyra, in an oasis of the Syrian desert, you would find only a few Arabians living in wretched mud houses, but here, many centuries ago, stood one of the great cities of the world. Palmyra became rich and powerful because, situated at a "crossroads" of important caravan routes, its merchants profited greatly from passing trade and the city levied taxes on all goods carried through it. The men of the city who successfully conducted caravans through the desert and protected the goods in their charge from desert tribes were honored and

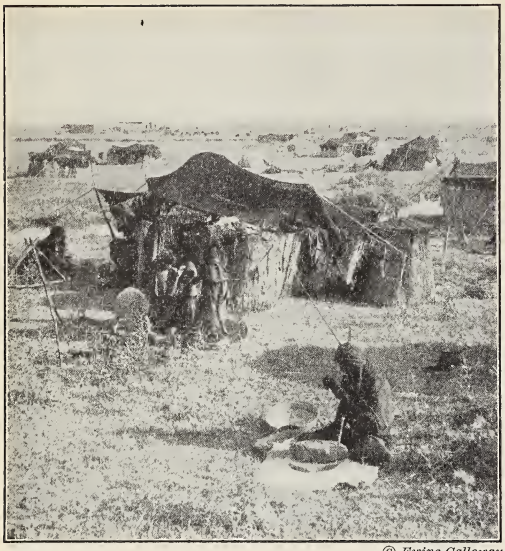


Figure 219 © *Ewing Galloway*

rewarded as benefactors of the state. Along the central avenue of the city there once were seven hundred fifty columns of limestone, each fifty-five feet high, that had been erected in honor of such men. The city finally was destroyed by a Roman army, and never recovered its earlier importance and splendor. This story of Palmyra briefly illustrates again some of the characteristics of The Land of the Five Seas. Most of its towns have been built in oases. Its greater cities have owed their importance largely to effective positions on trade routes. Its desert tribes always have been "raiders," and time after time it has been a battlefield between rival powers.

Along the way to Teheran you would see much to remind you of the toilsome trip by caravan into the heart of Arabia, for in general the conditions of life are similar throughout most of this huge land of little rain. Unless the trip was made in the spring time, you would be impressed anew with the bleakness and barrenness of the desert. In early spring the scant pasturage would be green, and here and there you would see brightly colored, wild flowers. You might come upon a temporary encampment of nomads similar to that shown in Figure 219, and catch a fleeting glimpse of their life and work as you motored past. The particular encampment here shown was southwest of Damascus, where there was rich pasturage near a small watercourse. The lower parts of the black-topped tents were made of reeds gathered near one of the streams in that district. The woman in the foreground is grinding wheat to make bread. Notice the two flat stones in front of her. By means of the short handle fastened into the upper stone she turns it around upon the lower stone. As she does so, she pours kernels of wheat into a hole which extends through the upper stone. The wheat is slowly ground into coarse flour between the stones. Perhaps some of the nomads you might pass would be on the way to such a town as that shown in Figure 220, to sell sheep, wool, and butter, and to buy rice and cloth. At Bagdad, you would meet familiar scenes (*Journeys in Distant Lands*, pp. 8–11). From that city your motor route leads northeastward, and you presently ascend from the river-built plain of Mesopotamia to the Persian plateau by following up the valley of a short stream which flows down from the edge of the highland. Along this valley ran an ancient caravan route, and along it now a short railroad runs from Bagdad to the Persian frontier (Fig. 147).

A glimpse of Persia. — With the aid of your maps and what you have read, you now should be able to give some reasons for the following facts about Persia. Write your reason or reasons for the facts stated in each sentence listed below. You might later compare your statements, make any needed corrections in them, and copy them in your notebooks. This exercise should help you, too, in checking your answers to the questions on pages 230–231.

1. Population is densest in the Northwest, where, in some of the highland valleys, wheat and barley, sown in the autumn and harvested in late spring, are grown without irrigation.

2. Throughout most of Persia the people are nomads who dwell in tents and whose chief work is to care for their sheep, goats, camels, and donkeys.

3. Here and there in the desert stand walled villages, and close by them fruits, melons, beans, wheat, barley, alfalfa, cotton, and tobacco, some or all, are produced.

4. The chief native industry is the weaving of rugs and carpets of high value.

5. The banks of some of the irrigation canals are planted with poplars, which, when large enough to cut, find ready sale for use in building flat roofs.

6. Persia is a land of poverty. Its harbors are poor. It has few good roads, and almost no railroads.

In a Persian town; oil wells and trade. — Although Persia is, on the whole, a land of poverty, it is not without prosperous communities. Figure 221 shows part of one of the more thriving towns in the Northwest,

By courtesy of The Oriental Institute, The University of Chicago

Figure 220

© Ewing Galloway

Figure 221

the best part of the country. The closely set, whitewashed, clay-brick houses, with their flat roofs and their walled gardens in the rear, could as well be in any other one of the better towns. For miles near this town there are irrigated fields and orchards.

A comparatively new source of wealth in Persia has been found in large deposits of petroleum. Near the southwestern corner of the country, about one hundred miles east of the Shat-el-Arab, many oil wells have been drilled. The output of the wells goes in a pipe line to the river below Basra, and is carried away in tank steamers.

By value, oil makes up more than half the exports of Persia, and rugs and carpets rank second. Cotton goods, sugar, and tea head the list of imports.

A final word. — As a result of your study, you should realize clearly that The Land of the Five Seas is important chiefly because of its position between the populous countries of western Europe and those of southern and eastern Asia. It is important in spite of the fact that most of it is very dry, and therefore thinly peopled.

Summary Exercises

Another relationship race. — You might run another "relationship race" to see which one of you first can find in the paragraphs entitled "To the heart of Arabia by caravan" ten sentences or groups of sentences which suggest geographic relationships. List the places where the passages that you select start, as you did in the earlier race (p. 205). After the race, make for your notebook a list of the relationships you found, using again the "arrow" form of expression in so doing.

About a British fortress. — Find Aden, in the southwestern corner of Arabia, on the map in Figure 147. Aden is a British fortress, and a calling port for coal, fuel oil, and water needed by passing steamers. Its population is only about one-eighth that of Britain's great outpost at the *southeastern* corner of Asia (p. 223).

Why is a fortified seaport near the entrance to the Red Sea of great value to Britain? Do you think that many or few ships probably stop there for water and for coal or fuel oil? Why? How many and what reasons can you give for the great difference in size between Aden and Singapore?

Figure 222

BRIDGE LANDS OF SOUTHEASTERN EUROPE

The Balkan States and Hungary. — By crossing the narrow Bosporus or Dardanelles, one may pass from Asia's " Land of the Five Seas " into southeastern Europe (p. 231). Most of southeastern Europe consists of a great peninsula which lies between the Black Sea and Aegean Sea on the east, and Adriatic and Mediterranean waters on the west (Fig. 8). Find from the map in Figure 8 the name of the east-west mountains which extend across Bulgaria. This name commonly is applied also to the entire peninsula. The five countries which are wholly or in large part within the Balkan Peninsula, together with that part of Turkey which is in Europe, often are called " The Balkan States." Find them on the map in Figure 8. Since most of Hungary (Fig. 8) lies outside the peninsula, it is not included in the Balkan States. However, the Balkan States and Hungary together may well be called the " bridge lands " of southeastern Europe. After you have learned from the following pages about peoples and conditions in these countries, you should understand why " bridge lands " is a suitable name for them.

Where Europe and Asia meet. — The picture in Figure 222 was taken in a town

in southeastern Yugoslavia. Does not the scene in the market place remind you of sights in the streets of Bagdad (*Journeys in Distant Lands*, p. 9)? There are many other towns in southeastern Europe which in various ways suggest Asia. Narrow streets are lined with booths and small open-front shops, in many of which turbaned men sit cross-legged on the floor, plying some trade or displaying wares for sale. Here, a coppersmith, with a tray of live red coals before him, hammers and solders pieces of burnished metal. There, a skillful workman fashions belts and bags of leather. Silks and gay embroideries fill some shops, while in others piles of fruit and clusters of red paprikas brighten the dark corners. In the streets people in western dress mingle with peasants in quaint embroidered costumes, with black veiled Mohammedan women, and with Turkish men wearing slippers, full trousers, short jackets, and turbans. You can see two men in Turkish costumes in the right foreground in Figure 222.

Most truly eastern in appearance of all the towns and cities of southeastern Europe is Istanbul, whose glistening domes and slender minarets overlook the waters of the Bosporus. Much of the city is a tangle of narrow, winding streets, many dirty and ill paved — a confusion of mosques, palaces, and squalid hovels. The bazaars of Istanbul suggest those of Damascus (p. 235). Through the city's streets move throngs of people — Turks, Bulgarians, Greeks, people of western Europe, dark-skinned Syrians, Jews, people from the hills of Asia Minor — merchants and beggars, peasants and craftsmen, naval officers, government officials, and tourists. Through the throng weave laden donkeys, sturdy porters carrying heavy burdens, and tattered street vendors crying their wares.

Istanbul is the metropolis of a country almost all of which is in Asia Minor. Moreover, it is separated from Asia only by the narrow Bosporus. It is natural, therefore, that this city is Asiatic in many ways. But it is surprising that also in towns near the Adriatic coast of the Balkan Peninsula there are many suggestions of Asia — Mohammedan mosques, eastern markets, and people wearing oriental costumes. Yet there is also much in these countries to recall western Europe. Budapest, Hungary's capital (Fig. 8), is a modern European city — a city of fine streets and splendid buildings, of museums and schools, of mills and busy river wharves. Belgrade and Sofia (Fig. 8) likewise resemble modern western cities, while Bucharest, the Rumanian capital (Fig. 8), with its gay cafés and fashionable avenues, has been called " The Little Paris." Truly, Europe and Asia meet in the Balkans.

A mixture of peoples. — Though the area of these " bridge lands " of southeastern Europe is little greater than the combined area of Spain, Portugal, and Italy, seven countries, as you have seen, divide it between them. Each of the seven has had a history different from that of its neighbors, and has a language of its own. However, not all of the people of each country speak the same language. In Rumania, for example, there are many Hungarians, Bulgars, and Turks, as well as Rumanians. Moreover, not all of the people who speak Rumanian live in Rumania. In each country there is a mixture of peoples. Find the Vardar River on the map in Figure 8. In the area near the Vardar there is a very mixed population. To what countries does this land belong? Throughout the Vardar district, Turks, Greeks, Albanians, Bulgars, Serbs, Vlachs, Jews, and Gipsies are so mingled that it would be impossible to draw boundaries between the peoples of different languages. The Serbs are the inhabitants of the land formerly called Serbia, which is now a part of Yugoslavia. The Vlachs are related to the Rumanians. Many of the Jews came to the Balkans several centuries ago from Spain;

Figure 223 *Methodist Prints*

many of them still speak Spanish. The Gipsies came into southeastern Europe many years ago, probably from Asia. Large numbers of Gipsies are scattered through these countries; some live a settled life, but here, as in the United States, many of them are wanderers.

Primitive life in southeastern Europe. — Many of the people of southeastern Europe live and work in primitive ways. Notice the method of transportation shown in Figure 222, the barefoot Bulgarian breadseller in Figure 223, the oxen threshing grain by trampling it in Figure 224, and the men cutting grain with scythes in Figure 225. Primitive houses and old-fashioned methods of work are seen at various places in western Europe, but throughout southeastern Europe they are more widespread and general than in most countries of the West. In Rumania and Bulgaria one sees, here and there, families living in rooms hollowed out of the earth, with only a roof of reeds above ground. In Albania, many people live in villages reached only by rough mountain trails; they make their living chiefly as shepherds. Except for some light railroads put down by foreign armies during the World War, there is not a mile of railroad in Albania. In some parts of the country, forked branches serve as the only means of plowing the patches of ground which are tilled. Among the Vlach peoples there are those who still live, each summer, as nomad herders, wandering over the mountains in search of pastures, and settling in villages only in winter. Occasionally, one still may see a whole clan of these people on the move — men, women, and children migrating with their flocks, herds, and other possessions somewhat as tribes have wandered since Bible days over the grasslands of western Asia.

War-worn countries. — The lands of southeastern Europe have been troubled again and again by wars. In modern times, it has been said that all trouble in Europe begins in the Balkans. Moreover, the Balkan countries rarely have been allowed to settle their quarrels themselves. Other European states are much interested in what happens in these countries, and have interfered repeatedly in their affairs.

Directions for further study. — As you read further, find reasons for (1) the similarities between ways of living in southeastern Europe and parts of Asia, (2) the mixture of peoples in the states of southeastern Europe, (3) the backwardness of many parts of them, (4) their troubled history, and (5) the interest of outside powers in their affairs.

A bridge between Europe and Asia. — The narrow Bosporus and Dardanelles have been crossed several times by armies or hordes of migrating people. Moreover, the many islands which dot the Aegean Sea have helped to make easy the passage between Asia Minor

Figure 224

Figure 225

and Greece by water. People moving from Asia toward central Europe by either of these routes must pass through Balkan territory. Just as the "Land of the Five Seas" forms a broad bridge between farther Asia and southeastern Europe, so the states of southeastern Europe form a bridge between southwestern Asia and central Europe. Indeed, the Land of the Five Seas and southeastern Europe may best be thought of as the two halves of a single great bridge connecting farther Asia and central Europe.

About six centuries ago, the Turks, an Asiatic people, entered Europe by crossing the straits. Within the following two centuries they swarmed through the Balkan States, overran Hungary, and reached at last the walls of Vienna. There, their conquests were checked. For a time, these barbarian invaders held the whole of southeastern Europe in their power. Then, little by little, by means of various wars, some of the conquered peoples regained their liberty. Turkey from time to time lost territory. As late as 1911, however, Turkey still extended as a broad band across the Balkan Peninsula from sea to sea. Does Turkey now own a large part of the peninsula, or a small part (Fig. 8)? There remain, however, many Turks scattered through other Balkan lands

which they once possessed. Does this not help you to understand why, in some parts of southeastern Europe, there still is much to remind one of Asia? The fact that these countries are " bridge lands " has been very important in their history.

Another road from the East. — The Turks are not the only Asiatic people who have moved into southeastern Europe within historic times. Find on the map in Figure 8 the lowland between the southern end of the Ural Mountains and the Caspian Sea. A route by way of this lowland has been used repeatedly by invaders who, driven by hunger from the dry grasslands of inner Asia, sought homes in the rainier lands of Europe. Do you see that people passing through this lowland and moving westward along the northern shore of the Black Sea, would reach the plains of the Danube? From there they could spread southward through the Balkan Peninsula. The Hungarians are an Asiatic people who moved into Europe several centuries before the Turks; they came by this more northern route, and settled in the great plain of the middle Danube (Fig. 8). The Bulgars are believed to have come by a route through the same lowland. Do you see that the position of southeastern Europe in the path of invaders from Asia helps to explain its many peoples?

Invasions from the North. — Another fact which helps to explain the many peoples of southeastern Europe is that no great east-west mountain barrier, such as the Alps or the Pyrenees, stands between the Balkan Peninsula and the rest of the mainland of Europe. The Balkan Mountains extend only part way across the peninsula. The mountains of the western part of the peninsula extend in a general north-south direction. Between the Balkans and the western mountains, the trough formed by the Vardar River, flowing southward, and one of the tributaries of the Danube, flowing northward, furnishes a route from the plain of the middle Danube to the Aegean Sea (Fig. 8). Another valley route branches from this one north of the head of the Vardar and leads southeastward, south of the Balkan Mountains, toward Istanbul (Fig. 8). Find on the map in Figure 8 the railroads which follow these two main routes. The plains of southern Rumania and northern Bulgaria may be entered from the north by a lowland route between the eastern end of the Carpathians and the vast marshes of the Danube delta (Fig. 8). Peoples from northern Europe, attracted by the warmth and sunshine of lands to the south, thus found gateways to the peninsula. About the seventh century, the Serbs and their kindred moved into the Balkans from the north. Long before the Christian era, people from the north moved southward into Greece.

How mountains keep peoples apart. — In some parts of the world which have been overrun time after time by invaders, the various peoples have, in time, become mixed and blended to form one people. In southeastern Europe there remain many distinct peoples. This is partly, perhaps, because there has not been time enough for blending, but partly because, once peoples were settled within the peninsula, mountains made communication between them difficult. The Albanians, for example, are believed to have lived in the peninsula longer than most other peoples there. Their home among the rugged western mountains has helped them to preserve, in large part, their early customs and language, in spite of all invaders. Of course, lands along the chief routes followed by most of the invading peoples are the parts of the peninsula in which the populations are likely to be most mixed.

Can you state now at least four facts which help to explain why there are many peoples in southeastern Europe?

Contrasts. — The lands of southeastern Europe, moreover, are highly varied. Conditions differ widely from place to place,

and, naturally, ways of living and working vary similarly. The great contrasts between parts of these bridge lands help to make difficult the binding together of many districts to form large states. From the following paragraphs you will learn of some of these contrasts.

Figure 224 shows a view in Greece, near the Mediterranean coast. The trees on the hillside are olive trees. Find from the map in Figure 63 in what parts of the Balkan Peninsula olive trees commonly grow. The grain which is being threshed in Figure 224 is wheat. Find from the map in Figure 62 another use which is made of some of the land in Greece. Notice on this map the dots along the shores of the narrow gulf which almost separates southern Greece from the rest of the peninsula. What do you recall about the kind of grapes raised on the slopes bordering this gulf (*Journeys in Distant Lands*, p. 78)? The fact that olives, wheat, and grapes are among the chief crops of Greece suggests to you what about the climate there? Use Figures 24 and 25 to check your conclusions about rainfall. Do the maps in Figures 27, 28, 29, 30, 31, 62, 63, 64, and 120 suggest that Greece is important, or unimportant, as an agricultural country?

Figures 225, 226, and 227 are views in a country very different from Greece. What is the most striking difference which you notice between the land shown in these three pictures and that shown in Figure 224? The pictures in Figures 225, 226, and 227 were taken in Hungary, in the great plain through which the middle Danube flows (Fig. 49). Of the six Balkan States, which most resembles Hungary in the extent of its plains (Fig. 8)? What differences between Rumania and Hungary, however, can you find from the map in Figure 8? For what is the land shown in Figure 225 used? The land which is being plowed (Fig. 226) will also be used for grain. As you might expect, Hungary and Rumania, with their wide plains, are the chief grain-growing countries of southeastern Europe. Find from the maps in Figures 27, 28, 29, and 30 what grains are important in these two countries. What does the importance of corn suggest to you about the summer rainfall in these plains? From the maps in Figures 24 and 25, find during which half of the year the greater amount of rain falls there. How do the Hungarian and Rumanian plains differ in this respect from the greater part of Greece? Notice the almost complete absence of trees in Figure 227. Wide stretches of the plains of the middle and lower Danube originally were treeless grassland. State one reason, then, why the industry shown in Figure 227 was a natural one to start there.

Do you think the coast line of Greece is one which would favor shipping? Why? Should you expect maritime industries to be more important in Greece than in Rumania, or less important? Why? Should you expect to find maritime industries in Hungary (Fig. 8)? Figure 228 shows the harbor of Saloniki, one of the chief seaports of Greece. What route leading to Saloniki helps to make it an important shipping center (Fig. 8)?

The picture in Figure 229 was taken in western Yugoslavia. How does the land shown in the picture differ from most of that in Hungary? What do the pack animals in Figure 222 (eastern Yugoslavia) suggest about the nature of the country over which goods must be carried? Is the whole of Yugoslavia mountainous (Fig. 8)? Since the mountain system of which a part is shown in Figure 229 extends along, and very near, the coast of Yugoslavia, should you expect that the coast would be a very useful one for shipping? Explain your answer.

What differences between Greece and Hungary can you now state? Between Greece and Rumania? Between Rumania and Hungary? Between Yugoslavia and Greece? Between Yugoslavia and Hungary? Check your answers and find other differences between the various parts of southeastern Europe as you read further.

A Mediterranean country. — Greece, with its mild, moist winters, its warm, dry summers, and its bright sunshine, suggests southern Italy and the coast lands of southern and eastern Spain. In the small lowlands near the coast of the peninsula, the crops common to Mediterranean shore lands grow. So much of Greece is mountainous, however, that there is little good farmland. The barrenness of much of the land and the many harbors along the ragged coast help to explain why many Greeks make a living by sea trade. As the many small sailboats in Figure 228 suggest, a part of the trade is with near-by islands. A favorable position for Aegean trade has helped to make Athens, the Greek capital, a large city. Much of the carrying trade of the eastern Mediterranean is in the hands of Greeks.

Figure 226

Figure 227

Figure 228 © Ewing Galloway

In its commerce, as well as in its climate and its products, Greece is a "Mediterranean" country.

The plains of the Danube. — The ancestors of the Hungarians were herders, shepherds, and horsemen in Asia, and it was natural that they should continue their former industries when they settled in grasslands near the Danube. Now, much less of the Hungarian plain is used for herding cattle, sheep, and horses than formerly. Scenes such as those in Figures 225 and 226 now are more common in Hungary than that in Figure 227. Though rain is scanty, the fact that summer is the season of greater rainfall helps to make various crops possible. A large part of the Hungarian plain, as well as much of the Rumanian plain, now is used for fields of corn and wheat. In some places, there are orchards and vineyards. There are still, however, extensive grazing lands in Hungary where, for long stretches, one may see neither tree nor house, save for the low reed shelters in which herdsmen sleep, and where only well poles break the horizon (Fig. 227).

Summer on the middle and lower Danube plains is very hot. In winter, cold winds sweep across the level lowlands; the plains often are covered with snow, and the rivers sometimes are frozen. At this season these plains contrast, even more sharply than in summer, with the sun-warmed hillsides of Mediterranean Greece.

A varied country. — The northeastern part of Yugoslavia is a part of the great plain of the middle Danube (Fig. 49). Here, as in Hungary, you might see fertile vineyards and broad, level stretches of wheat and corn. Most of the remainder of the country is very rugged. Notice that most of the surface shown in Figure 229 is bare of trees, and that the rock is only partly covered by low shrubs and bushes. These mountains near the Adriatic shore are made of a soft, white limestone. Streams cut deep, narrow gorges in this rock, and rain water dissolves furrows on the surface and forms great caverns and tunnels underground. Here and there in the mountains, there are basins rimmed on all sides by steep rock walls. Many of the slopes are too steep to hold any soil. On other slopes, the thin soil is dry because water sinks rapidly underground. In such soil, few plants grow. Much of the land is waste, while the poor pasture on some slopes is used, as you see in Figure 229, for grazing sheep. The basins into which soil is washed from the surrounding hills contain fertile farmland. It is very difficult, however, to build railroads, or even wagon roads, through this rugged country. The products of some of these small, fertile basins have little chance of reaching markets.

Farther east in Yugoslavia, the mountains are rugged, but of different rock. Their slopes bear good forests of oak and beech. Valleys are broader, and roads are built along them with less difficulty. People here live chiefly in wooden cottages, instead of in stone houses as in Figure 229. This, like Hungary, is a land of summer rain. The valleys have cold winters, but long, warm summers, and corn, grapes, and tobacco are important crops. Corn, indeed, is the staple food of the people. In the northern portion of the district, there are so many plum orchards that prunes are an important export. Many hogs formerly ranged in the forests, feeding upon acorns and beech nuts. Now

Figure 229 © Ewing Galloway

they are fed more largely upon corn and are kept on the valley farms, while sheep and cattle graze on the mountain pastures.

Along the coast of Yugoslavia is a narrow belt of land which differs widely from all of the three inland districts. This sheltered coast land has the mild winters of Mediterranean Greece. Where there is enough land between the mountains and the sea, there are olive groves, vineyards, orchards, and palm trees. The barrier of the limestone mountains impairs the usefulness of this coast for trade. Along the shores of the many bays and on the off-lying islands live hundreds of fishermen.

A country of shepherds. — The mountains of Albania, in part wooded, and in part of barren limestone, recall those of Yugoslavia, but the Albanian coast is not a home of fishermen. Harbors there are few, and parts of the coast are fringed by marshy, malarial lowlands. Albania, as you have seen, is a country many of whose people are shepherds.

A land of peasant farmers. — Bulgaria, too, is a land of much highland, but, as Figure 8 shows, there are, both north and south of the Balkan Mountains, stretches of lowland. Though many methods of work in Bulgaria are primitive, the peasants are careful, painstaking farmers, and, in spite of old-fashioned methods, the land is made to yield large crops. From what you know of adjoining countries, suggest crops which you think may be important in Bulgaria. Consult the various crop maps listed on page 243 to find whether your suggestions were good ones. One of the important products of Bulgaria you will not have named, for neighboring countries do not produce it. Just south of the Balkan Mountains, and separated from the broad lowland of central Bulgaria by a line of hills, there is a sheltered valley where, in summer, you might see acre after acre of blooming roses. From the rose petals is distilled the very

Figure 230

valuable oil known as attar of roses, which is used in many perfumes. Most of the world's supply of attar of roses comes from this valley.

An important likeness. — Do you not think now that the variety of lands in southeastern Europe may have helped somewhat in keeping the land divided between several countries? In spite of many differences, the lands of southeastern Europe are similar in that manufactures, except for home industries, are little developed in them. Such factory industries as exist are chiefly simple ones, using local raw materials. Budapest, for example, is an important flour-milling center. You have seen that ways of living and working are in many places primitive. Lack of very important manufacturing industries is another sign of slow development.

Some reasons for backwardness. — Southeastern Europe, as a whole, is poor in high-grade coal, though considerable quantities of lignite are mined. Hungary leads among these states in the production of coal (including both bituminous coal and lignite). These bridge lands have, however, certain other resources which should favor manufacturing. What resource does Figure 230 suggest to you? This picture was taken in Rumania, which has large supplies of petroleum. Yugoslavia, Rumania, and Bulgaria have a variety of metal ores, reserves of which are larger than the amounts mined would suggest. The mountains, especially those of Rumania and some of those of Yugoslavia, afford much timber and water power.

The failure of these countries to make full use of their natural wealth and to develop important manufactures is only partly accounted for by lack of high-grade coal. The same causes which help to explain the primitive ways in which the people live and work help also to explain the small development of manufactures. Does what you learned of highways and railroads in Albania and western Yugoslavia and what Figure 222 showed you of means of transportation in eastern Yugoslavia indicate one reason why progress has been difficult? Do you not think, as you look at the map in Figure 8, that other parts of the peninsula probably suffer from the same cause? Also, the repeated wars which the Balkan States have suffered and the poor government which parts of these lands long endured under Turkish control have done much to hinder progress.

Some causes for Balkan wars. — Some of the many wars have been struggles for defence and for liberty waged against invaders from Asia and the North. Others have been

quarrels about boundaries, due in part to the great mixture of peoples and to the impossibility of drawing boundaries which would separate all the people of one language from those of another. Boundary quarrels also have resulted from the fact that good routes through the peninsula were few and those few were coveted by several countries. For example, though Greece now owns the lower Vardar Valley, both Bulgaria and Yugoslavia would like to own it. Why would it be very useful to each of these countries?

Foreign interests in the Balkans. — You have yet to see reasons for the great interest of other European powers in the Balkans. The fact that important routes to Asia lead through Balkan territory is one reason why some of the commercial nations of northern Europe are much interested in the Balkan countries. The map in Figure 8 should help you to see other reasons. Notice the following facts which the map shows. (1) The shortest routes to the sea from Vienna and Budapest lead through Yugoslavia. (2) The Albanian coast is so close to the "heel" of Italy that a hostile power holding Albania could endanger Italy's entrance to the Adriatic Sea. (3) Seven countries own land bordering the Danube River. The improvement of the lower Danube and the right to use it freely are as important to the countries bordering the upper and middle Danube as to the Balkan countries along its lower course. Because so many nations are interested in the use of the Danube highway, the river long since was put under the control of a commission made up of representatives of various countries. (4) The Bosporus and Dardanelles provide the only gateway from the Mediterranean to the Black Sea. Not only the countries bordering the Black Sea but also all other countries that wish to trade with them are interested in the question of the ownership and control of the lands bordering these straits. Many nations, therefore, have had a deep and abiding interest in what happens in the lands fronting these connecting waterways (p. 232). The Bosporus, the Dardanelles, the Sea of Marmora (Fig. 216), and their shores are now controlled by a commission on which several nations are represented. Turkey cannot close to other nations the gate to the Black Sea.

Summary Exercises

Reasons. — What reasons can you now give for items 1–5 on page 240?

Cities. — What facts have you learned about southeastern Europe which help to explain why there are few large cities there? What facts have you learned about routes in the Balkans which help to explain the importance of Belgrade and Sofia (Fig. 8)? Do you think that transportation in Hungary would be more difficult than in most parts of the Balkan Peninsula, or less difficult? Why? Should you expect to find more roads and railroads meeting at Budapest than at Belgrade or Sofia, or fewer? Does your answer help to explain why Budapest is by far the largest city of southeastern Europe? On which side of the Danube is the greater part of the city of Budapest (Fig. 240)? Formerly, Buda, on the west bank, and Pest, on the east, were separate cities. Buda is on hilly ground, while Pest stands on the nearly level land of the great Hungarian plain. Why is it natural that the greater part of Budapest should be on the east bank? The Danube in Hungary frequently overflows its banks, and floods large areas of land. What have you learned about most of the land of Hungary which helps to explain this fact? Which part of Budapest is in danger of floods? Less than a century ago, most of Pest was destroyed by flood. Do these facts suggest to you one reason why the Rumanian capital is not on the Danube?

Other facts to explain. — 1. What have you learned about the character of much of the land in the Balkan States which helps to explain what the map in Figure 21 shows you about them?

2. What have you learned which helps to explain the great mixture of population (1) in the district bordering the Vardar River, and (2) in and near Istanbul?

For your notebook. — Write a paragraph explaining all the relationships you have learned between the ways in which people live and work in the Balkan States and the large amount of mountainous land there.

Figure 231 © Ewing Galloway

RUSSIA

With the maps. — 1. Find Russia on the map in Figure 3. What seems to you to be the most striking fact about Russia which is shown by this map? How many countries adjoin Russia in Europe? In Asia?

2. Find on the map in Figure 8 the part of Russia which is in Europe. Make from the map a list of striking differences between Russia in Europe and the remainder of the continent. Can you discover as many as five such differences? Did not one of these differences suggest that you might see in Russia much land like that in Figure 231?

3. Using the map in Figure 147, make a similar list of differences between the part of Asia which belongs to Russia and the remainder of that continent.

4. Most of Russia has decidedly cold winters and hot summers. What facts shown by the maps you have just examined help to explain this? Make a list of ways in which you think the lives and work of the Russians may be related to the great difference in temperature between summer and winter.

5. What general facts do the maps in Figures 6 and 7 show about the population of Russia? What questions do these facts raise in your mind? Do you not wonder, for example, why the population of European Russia is so much greater than that of Asiatic Russia? Do the facts shown by the rainfall maps (Figs. 24, 25, 150, and 151) help to explain the general distribution of population in Russia? If so, how? Notice on the map in Figure 7 the long, irregular, east-west strip with a density of sixteen to thirty-two persons per square mile which extends across Asiatic Russia. What do you find on the map in Figure 147 which helps to explain why there are more people per square mile in this strip of country than there are on either side of it? By comparing these two maps (Figs. 7 and 147) can you find other strips of comparatively dense population which follow railroads? Is the relation between population and railroads as clear in European Russia (Figs. 6 and 8)? Can you suggest a reason for this?

6. From your study of the different maps how do you think most of the people of Russia probably earn their livings? Why do you so think?

7. As far as you can, check your lists and also your answers to the preceding questions as you read further about Russia. Be on the lookout also for statements that will help to answer any other questions which were suggested by your map study.

The immensity of Russia. — As you have learned (p. 151), Russia lost much land along its western border as a result of the World War. Even so, the most striking fact about Russia is its huge size. It contains about

one-seventh of the total land surface of the world. It is more than twice as large as the United States, *including Alaska*. From Moscow to Vladivostok by train is a journey of five thousand four hundred miles (Figs. 8 and 147), equal to one by boat and train from Liverpool to Denver by way of Boston. European Russia is about four-fifths as large as the rest of the continent, which is divided among many countries. Asiatic Russia, about four times the size of Russia in Europe, makes up more than one-third of Asia — the largest of the continents.

Between East and West. — Not by position merely is Russia more Asiatic than European. Centuries ago most of Russia in Europe was peopled from Asia, and to this day in many ways it bears the stamp of oriental civilization. It is said that at the end of a single day in Moscow (Fig. 8), the capital, one is convinced of the Asiatic character of the city. Among other things, the hundreds of tall towers crowned by glittering domes and cupolas, many of the people and the costumes one sees on the streets, and the bartering of the merchants and buyers in the great market, alike represent the East rather than the West. Huge though it be, Russia as a whole may best be thought of as another " bridge " between the East and the West.

Russian expansion. — Five hundred years ago the Russians, or Muscovites, as they then were called, controlled only an irregular area in the Moscow district. In later centuries, the political power of Russia spread by conquest and colonization throughout the vast territory now within the limits of the country. Notice on the map in Figure 8 the great rivers which rise in the country round about Moscow. What are their names? To what seas do they flow? These and other navigable rivers were highways of expansion, along which Russian power moved outward across the great plain, to the White Sea and the shores of the Arctic, to the Baltic, to the Black Sea, and to the Caspian. Do you see that the process of bringing eastern Europe together into one country was aided by the far-reaching plain and the great river highways? The remainder of Europe, with its great islands, peninsulas, and mountain barriers, seems in contrast to have been marked out for division into many countries. The low Ural Mountains (Fig. 8) did not form a serious barrier to expansion eastward into Asia. To-day, railroads cross them without a single tunnel. Beyond the Urals another vast plain stretches eastward in Siberia (Fig. 147), and various tributaries of the mighty rivers which flow northward across it were followed toward the Pacific. At last, the plains of northern and northwestern Asia were united with most of the plain of eastern Europe under one power. The great, open lowlands, for the most part unridged by mountains, and the many navigable rivers are very important facts not only in Russian expansion, but also, as you will see, in Russian life to-day.

Russia's outlets to the sea. — A special object in Russian expansion was to secure good harbors which would serve as commercial gateways to the ocean highways. From the maps in Figures 8 and 147, what do you think about the commercial value of Russia's ocean coasts? Notice in this connection that almost all of the northern coast, both in Europe and in Asia, is within the Arctic Circle. How many ports do the maps show along the thousands of miles of Russia's northern and eastern coasts?

Did you find the Arctic port not far from Finland to which a railroad leads from Leningrad (Fig. 8)? The value of the harbor there was not realized by the Russian authorities until the World War, during which the railroad to it was built. Although so far north, the harbor is kept free from ice by water from a branch of the North Atlantic Drift (p. 116). It may in time become an important outlet for some of the products of northern Russia. Did you notice that Archangel, too, is reached by a railroad from the south, and that it is

at the mouth of a large river, the Dwina? Unfortunately, it cannot be visited by ocean boats for five or six months each year on account of ice, and the White Sea frequently is made tempestuous by sudden storms. In recent years a few boats, accompanied by an ice-breaker, have made one trip eastward each midsummer to the mouths of the Ob and Yenisei rivers (Fig. 147), but the Arctic coast of Siberia, ice-bound most of the time and backed by a belt of desolate land where only a few primitive people dwell, offers little chance for sea trade. Even at Vladivostok, at the end of the Trans-Siberian Railroad in the southeasternmost corner of Asiatic Russia, receipts and shipments by boat are made possible during two or three winter months only by the use of ice-breakers in the harbor.

As you can see from the map in Figure 8, Russia, having lost Finland, Esthonia, Latvia, and Lithuania, now has only a few miles of seaboard upon the west. Here stands, however, one of the greatest two cities of Russia. St. Petersburg, now called Leningrad, was built early in the eighteenth century on a marshy delta at the head of the Gulf of Finland in order to bring Russia into closer touch by way of the Baltic with western Europe. Its harbor would be closed for about five months each winter were not powerful ice-breakers employed to keep it open.

What is the remaining outlet of Russia to the ocean (Fig. 8)? As you know, however, this outlet from the Black Sea by way of the Bosporus and the Dardanelles leads through foreign territory. Is it not easy to understand Russia's great interest in the fate of Istanbul (p. 232), and the fact that in several wars it hoped to secure possession of that city? How is the Bosporus-Dardanelles outlet now controlled(p. 248)?

Russia, then, is greatly handicapped by the character of much of its coast and the fewness of its good harbors. The Russians are a land people, not a maritime people.

The monotony of Russia. — Another striking feature of Russia is the monotony of its landscape over seemingly endless areas. In many parts of western Europe, a traveler may view from hour to hour very different scenes. He may pass quickly from mountain to valley or from plain to plateau, from city to open countryside, from one manner of life to another, receiving fresh impressions in rapid succession. In Russia, on the other hand, it is possible to travel day after day, even by rail, without encountering any striking changes in the appearance of the land, the occupations of the people, or the character of the towns and villages.

Figure 231 is a view east of the Urals, along the Trans-Siberian Railroad (Fig. 147), which suggests the monotony of the boundless Russian plains. At what season of the year do you think this picture was taken? Why? Although the view is much the same at a particular time for great distances along the railroad, the scene changes greatly from season to season, as it does almost everywhere in Russia. In winter, the frozen land is buried with glistening snow. In the short spring, the snow melts quickly and soon the ground is carpeted with gorgeously colored, wild flowers. In the hot, dusty summer the sun-baked plain shimmers in the heat.

Could one take a longer trip in Russia without encountering marked changes in the appearance of the country along a north-south line, or along an east-west line? Why? Since the plains of Russia extend through many degrees of latitude, they of course differ much in their northern and southern parts. But on the whole the broad zones of differing country which extend in a general east-west direction merge gradually into one another.

In the Arctic tundra. — Find on the map in Figure 111 the Russian lands that are north of the forest area. Are they chiefly in European Russia, or in Asiatic Russia? This treeless belt along the frozen ocean is in general a cold desert — a waste of snow and

ice most of the time, a marshy plain during the short summer, when the ice in the ground thaws for a few feet below the surface. About the only useful vegetation over much of this Arctic plain, or *tundra*, is moss, though along its southern border there are stunted trees and berry bushes. How do you think the few people who live in the tundra can get a living? They fish, hunt, and raise reindeer, live in tents made of skins or of birch bark obtained from the edge of the forest, and in summer move frequently from one camping ground to another. Why are frequent moves necessary? With skins and furs they occasionally obtain a few comforts, such as sugar and tea, brought by traders to their desolate land.

Life in the northern forests. — South of the Arctic tundra, both in European Russia and in Siberia, there is a broad zone of forests. Over much of this zone, as suggested by the map in Figure 111, the trees are almost all conifers, such as pine, spruce, larch, and fir. South of the coniferous belt in European Russia there are mixed conifers and hardwoods, while in the southernmost part of the zone there are areas of hardwood trees only, including oak, elm, ash, and maple.

Few people live in the northern forests, as you will see by referring to the maps in Figures 6 and 7. Indeed, it is said that in the forests of Siberia there is, on the average, only one person to each two and a half square miles. The few people of the Siberian forest depend largely on hunting and trapping for a living. Find on the map in Figure 8 the railroad which runs from Leningrad through Vologda to the Urals. South of this line, most of the timber which once covered the central part of Russia in Europe has been cut. North of it, as far as the White Sea and the tundra, stretch vast forests, for the most part untouched except near the streams.

Vologda would be a convenient place from which to travel through the northern forests to Archangel, the only town of importance in all this part of Russia. The trip could be made by train or by steamboat, for Vologda is at the southern end of the railroad leading to Archangel, and also on a navigable tributary of the Dwina River (Fig. 8). If you were to go by boat, you probably would find that the little side-wheeler upon which you embarked was loaded in part with bales of flax and with salt, meal, and other provisions being sent north from central Russia to pay for the timber, fish, and furs which come from the North. Along the river you would pass strips of meadow, and here and there cultivated fields, but the edge of the forest would nowhere be far from the stream. Occasionally you would meet great barges loaded with timber, puffing tugs towing big rafts of logs, and small steamers carrying people and freight. The river is a busy highway because roads are few in the district and the swampy forests are almost impassable. Frequently you would see great heaps of timber and firewood on the shore. You might see a forest fire raging, for the peasants sometimes have burned timber near the river to make a clearing on which they could plant rye, oats, barley, and potatoes, the chief crops of the North. Most of the soil in this part of the country is poor, and after it is cultivated for a few years new clearings are needed.

You probably would change to a larger steamer to descend the Dwina, along which for mile upon mile you would see little save the wall of green trees on either side, their tops outlined against the gray-blue sky. Many summer days are very hot even in northern Russia, and you might be glad that you were traveling, not by train, but upon a river which in places is three miles wide. In your entire trip down the Dwina you would pass only one town, which is at the mouth of a tributary from the east, but at long intervals your boat would stop at some lonely landing where there is a cluster of log cabins housing a few wood choppers and fishermen. More frequently, you would come upon great timber rafts, drifting slowly downstream with the current. Long before you reached Archangel, you doubtless would feel that you were in a land far removed from the bustle of modern life as you saw it in the industrial countries of western Europe. As at last you neared Archangel, you would see sawmill after sawmill along the banks (there were some fifty of them a few years ago), each surrounded by piles of lumber, beams, and mine props, ready for export.

Archangel is a dull place during the long, cold winter, when the hours of daylight are very few and most work is out of the question, and a busy one

Figure 232 © *Ewing Galloway*

during the short, but sometimes hot, summer. Then fishing smacks come and go, the products of the sawmills are shipped away, and barter and trade are brisk in the street bazaar. Here butter, eggs, poultry, fish, wearing apparel made from native homespun, articles fashioned out of birch bark, and other things, are bought and sold. Birch bark is used, for example, in making butter boxes, hampers, and even shoes.

Logging in the forests through which you have traveled takes place in winter. The logs are hauled by ponies over the snow to the edge of some near-by stream, there to await the opening of navigation in May. Then they are floated or towed away.

What are the other timber-exporting countries of northern Europe? Is their situation better than that of Russia for exporting timber, or not so good? Why? Of course, it is the forests of Siberia that are farthest from the countries which import wood, and it is the Siberian rivers which are least useful as logging streams. Why are they least useful (p. 251)? As the forests of the Baltic countries presently become less able to meet the growing demand for wood, logging and lumbering doubtless will increase greatly in European Russia. Many years may pass, however, before they are carried on in Siberia except to meet local needs for fuel and building material.

The great farming belt of European Russia. — Notice on the map in Figure 6 the great area in Russia which has a population of more than thirty-two persons per square mile. In the west and south, it extends from the vicinity of Leningrad to the southwestern shore of the Caspian; at the Siberian border, it is narrow. Notice also the area of sparse population northwest of the Caspian Sea. Locate these areas as well as you can on the maps in Figures 27, 28, 29, 30, 31, and 64. Do you see that in Russia most land is devoted to each of the crops shown on these maps in some part of the area which has a comparatively dense population, and that no one of them is important in the area of sparse population northwest of the Caspian? Since about nine-tenths of the people of Russia depend for a living upon agriculture, largely or wholly, one naturally finds a close correspondence there between the population map and the crop maps.

Now compare the population and crop maps which you have just examined with the rainfall maps (Figs. 24 and 25). Do you see that the great area of comparatively dense population, within which agriculture is most important, is also, in a general way, the area which receives most rain? What about the amount of rain in the area northwest of the Caspian? Throughout almost all of the great population and crop area, more rain falls in which part of the year (Figs. 24 and 25)? Why, of course, is this an advantage? It is the more important because the total amount of rainfall received is rather small. Not only are rainfall conditions comparatively favorable in this area, but within it are the best soils of European Russia. In the south there is a great area of "black earth," a deep, loamy clay containing much decayed vegetation, that is perhaps unsurpassed in fertility.

Most of the great farming area once was covered with forests (p. 252), and most of it still is dotted with woods. Figure 232, with its cultivated fields and its woodland, shows how much of it looks at one season of the year. Part of the area was covered with the prairie grasses to which the forests gave place toward the south and southeast (Fig. 111).

Changing agriculture. — Grain farming has long been the kind chiefly practiced in European Russia. Rye, oats, wheat, and barley are the leading four cereals grown. Rye is the staple food of the Russian peasant, and before the World War such quantities of wheat were exported that Russia was called the "breadbasket of Europe." The yields

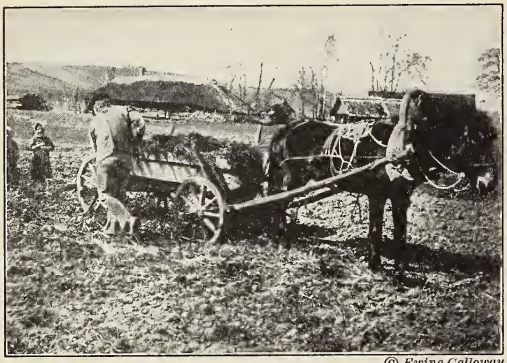


Figure 233 © Ewing Galloway

per acre of these and other crops are very low, however, for various reasons. Better crop rotation, better tillage, more fertilization, better seed, and more and better farm machinery, all are needed if the Russian peasants are to prosper. This is recognized by the present government of Russia, which is making great efforts to bring about the changes in farm practice that are needed and to get the peasants to undertake mixed farming, to grow more root crops, and to raise more stock. Some progress along the desired lines is being made. Many more potatoes, for example, are being grown than were formerly. Figure 233 shows a Russian farmer fertilizing his field for a potato crop. It probably will take many years, however, to bring about the best uses of the land by scores of millions of poor, uneducated peasants. Long established habits and prejudices can be overcome only slowly.

A few years ago leaders of the Union of Soviet Socialist Republics, as Russia now is called officially, drew up a program of development not only for agriculture, the chief occupation of the country, but also for transportation, mining, and manufacturing. This program, enforced by the government, is known as " The Five-Year Plan." Among other things, it calls for huge " collective farms " and " state farms " to replace the small farms of peasants. The many peasants whose lands have been brought together into a single collective farm are partners in a joint undertaking and use the machinery and other resources of the enterprise in common. The state grain farms are worked with the most modern machines, tractors and the like, and some of them contain more than one hundred thousand acres.

Of course, various crops are produced in the great agricultural area in addition to those already mentioned. Among them are millet, buckwheat, flax, hemp, vegetables of various kinds, especially cabbages, and sunflower seed. It probably will surprise you to learn that a total of nearly five million acres was used in a recent year to grow sunflowers, unless you have heard how fond Russian peasants are of munching sunflower seed. Russia is the leading country in the production of flax.

Farm villages. — The villages in which most of the peasants live are much alike, and so contribute their share to the monotony of Russian landscapes. The picture in Figure 234 might have been taken in any one of a thousand villages, in all of which the brown, weathered houses, standing well apart with their ends to the street, are made of logs and provided with steep roofs to shed the winter's snow. In most cases, the peasants build their own houses. They have been noted through centuries for their skill with the ax, which is used for much of the work. A house is likely to contain only one room. A big brick stove is used for heating and cooking, and for a couch and bed. An open shed, a stable, and perhaps a threshing floor are near the house.

The village streets are uneven dirt roads in summer, perhaps partly grass-grown, but much better in winter, when sleighing usually is good. The wooden church, with its green or blue dome, is the principal building. Many of the wells have two lofty poles for drawing water, after the manner of the Egyptian shaduf. On the fronts of the few shops, rude

Figure 234

paintings on sign boards indicate the character of the goods for sale within. The wells, the paintings, and the village bazaar give an oriental touch to the scene.

There are, of course, some differences between Russian villages. They naturally vary in size, neatness, and prosperity. Then, too, toward the south, and especially on the prairie, many of the houses are built of clay, instead of logs, are whitewashed, and are tidily thatched or have roofs of tile or tin.

Manufacturing. — The household and village industries of Russia are very important. Even in the chief industrial district, which surrounds Moscow, they probably still have more workers than do the factories and mills. Many of the village industries are centuries old. At first, no doubt, nearly everything made was intended to meet a practical need. Among such things were cloth, tools, and furniture. Thus in leisure hours, and especially during the long winters, when most outdoor work was suspended, many things were made which could not otherwise have been had because of the poverty of the people, the isolation of the villages, and the difficulties of transportation. Later, families found it profitable to make things for sale or exchange locally. Later still, in many cases, all the peasant workers of a particular village or group of villages specialized in making certain things for sale both near and far.

In some of the northern villages near which timber is abundant, casks, cart wheels, shafts, and toys are made. In others, the skins and furs of wild animals are prepared for market. In certain villages northeast of Leningrad, socks, mittens, blouses, and other wearing apparel are made from wool. Many villages in the Moscow district specialize in making gold and silver chains, rings, crosses, and images. In villages along the lower Volga,

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Figure 235

the descendants of early invaders from the grasslands of Asia are skillful weavers of rugs and carpets. Here, also, are made sheepskin coats and oriental slippers. Since Russia grows much flax, many villages naturally have specialized in making linen. In Figure 235 you see strips of linen drying in the hot summer sun on the bank of a river, just outside a village which was built, like many another, in the edge of the sheltering woods.

As a part of "The Five-Year Plan," vigorous efforts recently have been made to promote large-scale, modern manufacturing in Russia. Among the projects already completed are a plant on the lower Volga capable of making fifty thousand tractors a year and a hydroelectric power station on the Dnieper River which is the largest in Europe.

The great fairs at Nijni Novgorod. — Many of the products of village industries have been sold for centuries at annual fairs held in the summer at many places. Of most importance were the fairs held since ancient days at different points on the Volga River between the mouths of the Kama and Oka rivers (Fig. 8), where each summer Russian merchants were wont to meet traders from the East. For more than a century, these Volga fairs have been held at Nijni Novgorod. Find this city on the map in Figure 8.

Nijni Novgorod is an excellent place for the great annual fairs, and, even apart from them, is an important commercial center, because of the advantages of its situation. It is at the head of navigation for large river boats on the Volga, Russia's greatest waterway and a main artery of trade. It is near the center of European Russia. It has good railroad connections with Moscow, some two hundred seventy miles to the west, which is the hub of the Russian railroad system (Fig. 8). It is at the edge of the industrial district which surrounds Moscow, and in the heart of the great agricultural area. Before the

Figure 236 © Wide World Photos

World War, a score or more of steamers and many craft of other kinds left Nijni Novgorod, or arrived there, each day throughout the navigation season. Fish, salt, and petroleum from the Caspian and its shores, metals, metal wares, and furs from the Urals, miscellaneous manufactured goods, and cereals were handled there in large quantities.

On the grounds of the world famous fair there are thousands of shops in regular rows. Figure 236 shows some of them during the first fair held there after the World War and the revolution in Russia. Before the war, the fair, which lasted for about six weeks, sometimes attracted as many as 400,000 people from all parts of Russia, from other parts of Europe and of Asia, and from overseas. Russian products made up perhaps four-fifths of the goods bought and sold, but tea and silks, for example, came from China, while groceries, wines, and various factory products came from western Europe.

A land of the future. — You already have seen that Siberia is sparsely populated (pp. 249 and 252), and that its timber resources have scarcely been touched (p. 253). It has long contributed gold and valuable furs to the trade of the world, but until recent years little else. Very much of its land good for farming remains unsettled, and its rich and varied mineral deposits — coal, iron ore, copper, tin, silver, and others — remain for the most part unused. Siberia is, indeed, a land of the future, a land of undeveloped wealth. That it so remains, in a continent of ancient civilizations, some of whose countries are overcrowded, may seem to you remarkable. Think, however, of its surroundings: at the north, the frozen ocean; upon the west, the great plain of European Russia; immediately to the south, lands mostly semi-arid or arid; and on the southeast, Manchuria, itself until recently sparsely peopled, and Japan, for long a hermit kingdom. Then, too, there was a popular impression until recent years that almost all Siberia was so cold as to prevent successful settlement and development there. It is true that the coldest place in the world is in northeastern Siberia, and that its winters are everywhere long and severe, but on the plains in the south the summers are hot and the growing season long enough for many crops to ripen. For centuries, the Russian government in various ways prevented or hindered the free development of Siberia.

Since the completion of the Trans-Siberian Railroad something more than twenty years ago, progress has been much more rapid than formerly. Most of the life of Siberia centers along the railroad and the larger rivers which it crosses. Although the mouths of the great rivers emptying into the Arctic Ocean are closed by ice throughout almost the entire year (p. 251), their middle and upper courses are in summer important steamboat routes which connect with the railroad. Steamers ascend the Irtish, the Ob, and the Yenisei (Fig. 147), for example, to within two hundred or three hundred miles of the boundary of Mongolia. In winter, some of the ice-covered rivers serve as highways for travel by caravan or sledge. Figure 237 shows a caravan on the Amur (Fig. 147), the great river of southeastern Siberia.

Most of the people of Siberia live west of Lake Baikal (Figs. 7 and 147). In the West, the soils of the plain are rich in the section

Figure 237 *By courtesy of the Santa Fé Railroad Company*

traversed by the railroad, and the summer rains (Fig. 150) are sufficient for farming. There several millions of people from European Russia have settled in later years. The new lands which they opened up during the five years preceding the World War had an area about one and one-third times that of Illinois. After the war, settlement was renewed, and now all the best lands are occupied. The settlers grow wheat, oats, barley, rye, hemp, flax, and other crops with which they were familiar in Europe, and they have large herds of cattle. Their chief needs are improved highways, more railroads, and markets for the products of their fields and pastures.

Eastern Siberia faces the Pacific commercially, its outside trade being carried on mostly through Vladivostok. Much of it is hilly or mountainous (Fig. 147); it is richer in mineral resources than the West, but presents less opportunity for agriculture.

In a Siberian town. — Find Omsk on the map in Figure 147. What have you read which, together with what the map shows, helps to explain the fact that Omsk is the largest town in western Siberia? It is in the heart of the crop and dairy section, at the place where the railroad crosses the Irtish River. It is, therefore, an important collecting center for farm produce, and a distributing point for machinery and other manufactures needed by the farmers. The town is widespread for its population, and some of its broad streets extend far out into the country. Along its main street are big shops, small booths of Jewish fur dealers, cafés, restaurants, churches, a bazaar, and one or more theaters. The walls of most of the older buildings in Omsk are of painted logs; the walls of many of those built since the coming of the railroad are of concrete.

In winter, it may be sixty or sixty-five degrees below zero out of doors at Omsk. A blanket of deep snow covers the land, steamboats and barges are held tightly in the cold embrace of the thick river ice, and rows of long icicles extend almost to the ground from the edges of low roofs. Various interesting adjustments are made by the people to winter conditions. All the houses have felted, double windows, that are tightly sealed in autumn and so remain throughout the winter. They also have vestibules to help in keeping the cold air from the living rooms. In some of the restaurants, the vestibules contain wash bowls with hot water so that the men who enter them can thaw off the icicles on their beards and mustaches. The samovar is always ready in every house to supply a hot drink of tea with which one may "thaw out." The people wear hooded fur coats when outside, and the horses hitched to the sledges which serve as winter "cabs" are provided with heavy fur blankets. The short

Figure 238 *By courtesy of the United States Department of Agriculture*

Figure 239 *Methodist Prints*

winter days usually are bright; most of the long nights are calm and cloudless.

There can scarcely be said to be a spring season at Omsk, so quickly does winter give place to summer. Under the warm rays of the mounting sun, the snow and ice melt so rapidly that everything is flooded. The unpaved streets are turned into mire. Presently the ice in the river cracks, breaks, and begins to move. The landscape makes a "lightning change" from white to green, and suddenly the trees and near-by fields are clothed in verdure. "It was," one man wrote of the change, "as if a giant had passed a magic paint brush over the whole country." The ground dries quickly, and soon there are clouds of dust with every wind.

With the arrival of hot weather it is fashionable in Omsk to dine out of doors in a park on the bank of the river. The arrival of one of the big river steamers forms one of the special attractions of summer time. So long are their trips that it is necessary for them to supply many comforts to passengers. Some are said to have luxurious cabins and dining rooms. While such a boat is at Omsk it serves as a floating restaurant, where people may escape from the heat and dust of the town and in the evening enjoy the twilight views across the river. In late June it is broad daylight at Omsk until about eleven o'clock. "All the gorgeousness of the scarcely extinguished sunset is repeated in the approaching dawn."

Life in the steppes of Asiatic Russia. — To the south of the rich farmlands of western Siberia, the poorer grasslands, or *steppes*, still are inhabited chiefly by nomads. Doubtless in future farming will be pushed farther south, but the rainfall diminishes in that direction until it becomes so small that farming without irrigation will remain impossible. Notice again on the maps in Figures 150 and 151 the scant rainfall in this southwestern part of Asiatic Russia, east of the Caspian. Southeast of Lake Aral (Fig. 147) the semi-arid steppes, with their thin grasses, give way to desert land.

Durum wheat is the chief crop grown without irrigation on some of the better steppe lands. As you know, it needs less rain than ordinary wheat, and from this part of Russia it has been introduced into some parts of the United States where there is little rainfall and dry-land farming is practiced (*United States and Canada*, p. 86). In the picturesque scene in Figure 238, durum wheat is being hauled to some distant market across the vast, monotonous steppe north of Lake Aral.

As you should expect, the nomads of the steppes depend for a living chiefly on their flocks and herds. They own camels, many horses, cattle, and goats, and much greater numbers of sheep. Some of them drive their animals in summer to upland pastures in the highlands along the border of China and return in autumn to the plains, where grass has been cut and stored for winter use. Figure 239 shows some of their tents, which can easily be taken down, folded, and moved from one grazing ground to another. The tents have a framework of willow branches,

obtained perhaps from trees growing beside some stream flowing down from the mountains in the background, and are covered with thick felt made of the wool of sheep. Much of the clothing, too, of the nomads is made from the wool and skins of their animals. Their food consists largely of milk, cheese, and meat. By selling wool, hides, and part of their animals in some town near the border of the steppe lands, they procure guns, cotton cloth, and other necessaries which they cannot themselves provide.

In what ways do the lives of these people resemble those of other nomads about whom you have read?

In the desert beyond Lake Aral. — What arid lands about which you have read adjoin the Russian desert which is southeast of Lake Aral (Fig. 147)? Notice on the map in Figure 7 that at only one place in Siberia is the population so dense as in parts of this Russian desert. Find on the map in Figure 147 the dots for two cities in this area, each containing more than 100,000 people. Does your earlier study of the neighboring desert lands of Sinkiang (pp. 195–196), together with the maps in Figures 147, 150, and 151, suggest any reasons for these strips of denser population and for the growth of towns and cities? If so, what ones?

Most of the people are settled thickly in irrigated tracts along the rivers, which derive their water from the melting snows of the lofty mountains upon the east. The hot summers and the supply of water from the rivers permit the growing of cotton and rice, which are leading crops. Mulberry trees are grown, and silk worms are reared. Fruits, melons, tobacco, wheat, and barley all are produced. Leather work and the making of rugs in various towns indicate uses to which some of the products of the neighboring grazing lands are put.

Modern irrigation works are planned to extend the area which can be farmed, and particularly to make it possible to grow cotton more widely. These irrigated lands have been the main source of cotton for the Russian textile industry. It was to get the cotton, as well as for military purposes, that railroads were built into the area. Notice on the map in Figure 147 that cotton can go directly by rail to the Moscow district, where the Russian textile industry is chiefly developed.

The capital and largest city. — Moscow is beautifully situated on rolling hills on both sides of a small, winding river. In the center of it, by the side of the river, is the old, walled-in city, called the Kremlin, with its chapels, palaces, and cathedrals. From the embattled walls of the Kremlin radiate wide streets that intersect broad, encircling boulevards lined with trees. How many of these features of Moscow can you find on the map of the city in Figure 240? Figure 241 shows one of the many interesting views of the outer city that may be had from the Kremlin. The great church in the middle distance, its walls sheathed in marble, is famous for its beautiful architecture. Rich in color and history, Moscow has a very warm place in the hearts of the Russian people. Upon its busier streets and bridges may be seen representatives of most of the more than thirty nationalities found within the limits of this largest of countries.

Moscow succeeded Leningrad as capital because of its historical associations and its position near the center of European Russia. It is the distributing center of the entire Russian railroad system, the commercial metropolis, and the leading manufacturing city. Among the products of its factories and mills are manufactures of iron and steel, miscellaneous metal wares, textiles, and rubber goods. It is surrounded by scores of manufacturing towns that swell its business by their purchases. Near at hand to the south are coal mines, though most of its coal comes from better deposits near the northern arm of the Black Sea. Find these coal-mining areas on the map in Figure 66. The one near the Black Sea produces more than

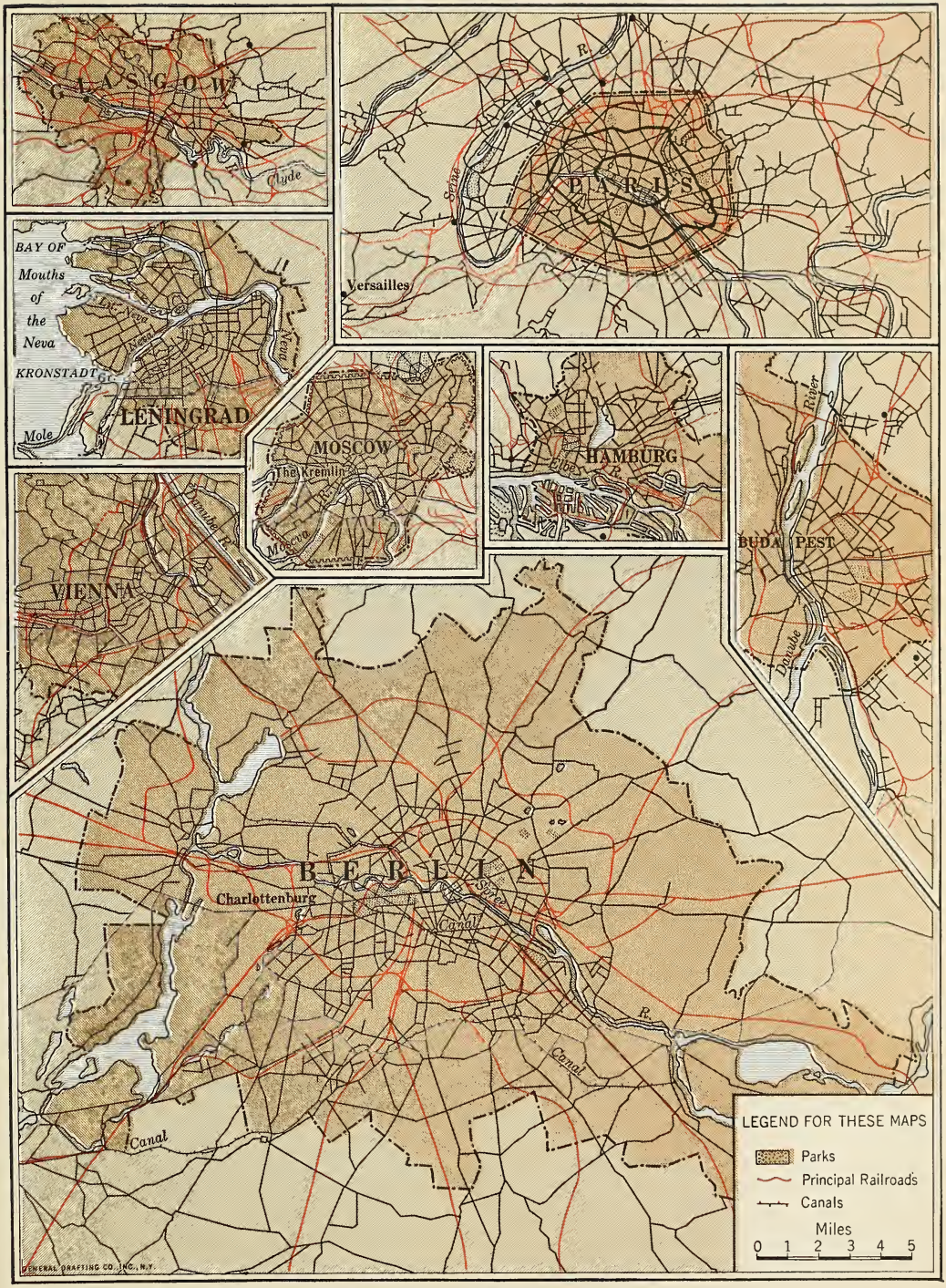
GLASGOW
Clyde
PARIS
Seine R.
Versailles
BAY OF
Mouths
of
the
Neva
KRONSTADT
LENINGRAD
Mole
Neva
MOSCOW
The Kremlin
Moscva
HAMBURG
Elbe R.
BUDA PEST
Danube
VIENNA
Danube R.
BERLIN
Charlottenburg
Canal
Spree R.
LEGEND FOR THESE MAPS
Parks
Principal Railroads
Canals
Miles
0 1 2 3 4 5
GENERAL DRAFTING CO., INC., N.Y.

Figure 240

Figure 241 © *Underwood and Underwood*

three-fourths of the coal mined in Russia. Moscow's pig iron comes largely from blast furnaces in southwestern Russia which are near the chief coal-mining area and near mines producing high-grade iron ore. Some of it comes from furnaces in the Ural Mountains, where also there are coal mines (Fig. 66) and iron-ore mines. The section of the Urals crossed by railroads (Fig. 8) likewise contributes various other metals, as well as precious stones, to the industries of Moscow and other cities and towns. From it comes almost all the platinum of the world. With its varied advantages, Moscow has reached a population of nearly 2,000,000, and has replaced Leningrad as the largest city of Russia.

Some other important cities. — What have you learned already (p. 251) about the land on which Leningrad stands? How does the map of the city in Figure 240 show you that Leningrad is on low, almost flat land? Several canals traverse the city. Why was it easy to dig canals there? Leningrad, as perhaps might be expected from its position and its connection by sea with western Europe, is the least Russian of Russian cities. Why is its situation not so good as that of Moscow for most industries using products of Russia as raw materials? Before the World War, however, when it was both the capital and the largest city of Russia, it had thriving industries, many of which were located there by the government or because of help which the government gave. There were, for example, great shipyards in which war vessels were built, and large plants in which military equipment, textiles, chemicals, machinery, and other things were made. The prosperity of Leningrad in the future probably will be measured by its importance as a port.

Kiev, the third city of Russia in point of size, is on the Dnieper River in the heart of the fertile farmlands of the Southwest (Fig. 8). Its growth has been due chiefly to trade, rather than to manufacturing. Do you see why it is the natural center of the Russian sugar industry (Fig. 64)?

Odessa (Fig. 8), the fourth city of Russia in size and the largest on the Black Sea, has an excellent harbor, several miles of splendid wharves, and huge grain elevators. Through Odessa much of the wheat formerly exported by Russia found its way to market. By noting the position of Odessa with reference to the principal wheat districts of the country (Figs. 8, 26, and 27), you should be able to give a reason for this. Such busy scenes as that in Figure 242 may again be viewed along the Odessa water front as Russian agriculture and trade regain the position which they had before the war.

Find Baku on the map in Figure 8, on the western shore of the Caspian Sea. Baku is in the midst of the great Russian oil fields, and the oil industry has made it the leading city on the Caspian.

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Figure 242

Summary Exercises

Comparing lists. — 1. Add to your list of differences between European Russia and the remainder of the continent (p. 249) any others that you discovered as you studied Russia. Do the same with your list of differences between Asiatic Russia and the remainder of that continent. By comparing lists, make any needed corrections or additions, and then copy them in your notebooks under suitable headings.

2. In a similar way, add to your list of ways in which the lives and work of the Russians are related to cold winters and hot summers (p. 249). Then compare your lists, make any needed corrections or additions, give them a suitable heading, and copy them in your notebooks.

Answering questions. — 1. State all the facts you have learned which help to explain the areas of (1) comparatively dense, and (2) comparatively sparse, population in Russia, as shown on the maps in Figures 6 and 7.

2. How many Russian cities contain more than 100,000 people each (Figs. 8 and 147)? How many of them are in European Russia? What facts have you learned which help to explain the striking difference in the numbers of such cities in European Russia and Asiatic Russia?

3. Compare the location of coal-producing areas in European Russia (Fig. 66) with the distribution of large cities there. What do you find to be true? What have you learned which helps to explain what you found?

4. How many cities each having more than 100,000 people did you find in Britain (p. 11)? If you have forgotten, count them again (Fig. 11). Is it not striking that Britain, whose total population is about two-fifths that of European Russia, has so many more large cities? How many facts can you now give which help to explain the difference?

EURASIA SUMMARY

Contrasts and work signs. — 1. What contrasts between Europe and Asia did you find at the beginning of your study of these continents (p. 4)? What other contrasts can you now name?

2. What reasons can you give for the fact that there are more countries in Europe than there are in Asia (p. 2)?

3. Give all the reasons you can for the fact that the average population per square mile is greater in Europe than in Asia.

4. When you think now of signs in the landscape which suggest *agriculture* (p. 4, 1), what countries of Europe or Asia come to mind? Which ones are suggested as you think of landscape signs of *grazing?* Of *fishing?* Of *hunting?* Of *forest work?* Of *mining?* Of *manufacturing?* Of *commerce?*

5. What country in Europe or Asia comes first to your mind when you think of *stock farming?* What landscape signs do you connect with stock farming there? Name a country in which you might see *grain farming*, and tell all the landscape signs you can of such work there. Do the same for *truck farming*, *dairy farming*, and *mixed farming*.

Making a map of work regions. — Now that you have studied Eurasia, you can see that it is made up of "work regions." These regions, like those of the United States, do not, in most cases, have distinct boundaries (*United States and Canada*, p. 91). Some of them consist of several districts, separated one from another by parts of other work regions. Separated from the main parts of some regions, there are small, detached districts, or "outliers," belonging to them. You can show the "work regions" of Eurasia, in a general way, with the aid of the following directions.

1. On an outline map of Europe, print "1's" in the following areas, scattering several of them through the larger ones. (1) Portugal, except the northernmost part; (2) the southern half of Spain; (3) the Ebro Valley and northeastern coastal land of Spain; (4) the southern Rhone Valley and the Mediterranean coastal lands of France; (5) Italy, except the Alpine lands and the Po Valley; (6) a narrow belt of land along the eastern coast of the Adriatic Sea; (7) Greece; (8) the Aegean coast of Turkey in Europe. Use the map in Figure 8 to help you place the numbers on your map correctly.

What kinds of work do you associate with all of the districts which you have numbered? Compare your map with the map in Figure 63. Was the raising of olives one kind of work of which you had thought in connection with this region? For which of the grains whose distribution is shown on the maps in Figures 27–30 is most land used in the districts you have marked? What does the map in Figure 62 show about these districts? What kind of animal do you think of as most commonly raised in these lands? To check your answer, compare the maps in Figures 20, 21, and 22. Notice that in Figure 21 each dot stands for 10,000 animals, while in Figures 20 and 22 each dot stands for only 5,000.

What do you know about the summer temperatures and rainfall of these districts? About the winter temperatures and rainfall? About the surface of the land? Which of the facts which you have stated about the surface and climate of these districts help to explain the importance of olives? Of wheat? Of grapes? Of sheep? Will you not now think of all the districts you have marked "1" as making one "work region"?

In the legend for your map, print after "1" the name "Mediterranean farming and grazing region." Which ones of the relationship paragraphs that you have copied in your notebook could you use in indicating the outstanding facts about this Mediterranean work region?

2. Scatter "2's" in the following areas: (1) the northernmost part of Portugal; (2) the northwestern coastal lands of Spain; (3) the Garonne Valley; (4) the Saône Valley; (5) the plains of the central Danube in Hungary, Czechoslovakia, Austria, and Yugoslavia; (6) the lowlands bordering the lower Danube in Rumania and northern Bulgaria; (7) the valley south of the Balkan Mountains in Bulgaria; (8) eastern Yugoslavia.

State all the ways you can in which these districts are similar. State all the differences you know between these districts and those which you numbered with "1's." What are the chief differences between these districts and the lowlands of Europe farther north? The maps in Figures 21, 22, 24, 25, 30, 62, and 63 will be useful to you in checking your conclusions. Do you not think of the lands you have numbered with "2's" as lands of warm, moist summers, in which the production of corn, wheat, and wine, and the rearing of cattle, all are important? Do you not think of the region as one of much mixed farming? After "2" in the legend for your map, print the name "Central European farming region."

3. Scatter "3's" through the following areas: (1) the Pyrenees Mountains; (2) the Alps; (3) the

Jura Mountains; (4) the Balkan Mountains; (5) the Caucasus.

Is agriculture more important, or less important, in these districts than in regions 1 and 2? Explain why. What kinds of work are important in the parts of region 3 which you have studied? As you have seen, work varies much from place to place within this region. Where there are extensive meadows above the tree line, dairying is important. Sheep grazing is more important than dairying in some of the mountain districts. In well-forested mountain districts, such as the Austrian Alps and Slovakia, lumbering is an important industry. Throughout the mountain districts, agriculture is practiced in the valleys. After " 3 " in your legend, print the name " Highland grazing, lumbering, and farming region."

4. Scatter " 4's " through the following areas: (1) Northern Ireland; (2) Great Britain, except the highlands of Scotland, the western fringe of Wales, and the peninsula south of Bristol Channel; (3) Belgium; (4) the Netherlands; (5) northern and northeastern France; (6) the Rhine Funnel; (7) the Saxony Triangle; (8) the Silesian Trough; (9) the western part of the German plain, including Bremen, Hamburg, and Berlin; (10) the southwestern part of Poland, including Lodz and Warsaw; (11) the western part of Czechoslovakia; (12) the eastern part of Austria, including Vienna.

Do you see that the combined districts you have numbered " 4 " make up one belt? Print " 4's " also in the Lyon district of France, the Barcelona district of Spain, the Swiss plateau, the western part of the Po Valley near Milan and Turin, and the Moscow industrial district. These districts are outliers of region 4.

What chief work do you associate with the districts you have numbered " 4 "? Though agriculture is important within this region, as in regions 1 and 2, manufacturing and commerce, especially the former, are *much* more important than in other parts of Europe. What reasons can you give for the importance of manufacturing in region 4? After " 4 " in your legend, print " Manufacturing and commercial region."

5. Scatter " 5's " through the following districts: (1) the Irish Free State; (2) the parts of Great Britain not included in region 4; (3) all parts of France not included in regions 1, 2, 3, or 4; (4) the parts of Germany not included in region 4; (5) Denmark; (6) the lowlands of southern Sweden; (7) the lowlands of southern Norway; (8) the southern coastal lands of Finland; (9) Esthonia; (10) Latvia; (11) Lithuania; (12) northwestern Poland.

Name all the ways you can in which these districts differ from those in region 3. From region 4. What are the chief grains produced in the areas you have numbered 5? Why are corn and wine not produced there in important amounts? What kinds of farming do you associate with these districts? How does the nearness of these districts to region 4 help to explain the importance of dairy farming, stock farming, and mixed farming in region 5? How do the relatively cool, moist summers help to explain the importance of dairy farming and the rearing of stock? After " 5 " in your legend, print " Northwestern farming region." Does this name now suggest to you the raising of wheat, oats, rye, barley, flax, potatoes, sugar beets, forage crops, cattle, hogs, and sheep?

6. Scatter " 6's " through (1) eastern Poland; (2) that part of European Russia between the railroad from Leningrad through Vologda to the Urals, on the north, and the Black Sea and Caucasus Mountains, on the south. Leave blank the area just northwest of the Caspian Sea.

What is the chief work in region 6? How does farming in this region differ from farming in region 5? How do rainfall, summer temperatures, and winter temperatures differ? How do these differences in temperature and rainfall help to explain the smaller importance of stock farming and dairy farming in this region, as compared with region 5? Print after " 6 " in your legend, the name " Russian farming region."

7. Scatter " 7's " through the following areas: (1) that part of Sweden north of the southern lowlands, except for a belt along the western boundary; (2) western Norway; (3) Finland, except the northern and southern coastal lands; (4) all that part of European Russia north of the railroad through Vologda, except the tundra (Figs. 8 and 111). What work do you think of first in connection with these areas? You should remember, however, that some agriculture is practiced in the cleared spaces in the forests. What are the chief crops raised on these farmlands? Why is wheat not one of the crops commonly raised on them? By what other work do many people in this region make their livings? After " 7 " in your legend, print the name " Northern logging, fishing, and farming region."

8. Scatter " 8's " through the following areas: (1) a belt along the higher part of the Scandinavian highlands, in western Sweden and eastern Norway; (2) northern Finland; (3) all that part of European Russia north of region 7. What ways of making a living do you associate with this region? Do you recall that most of the people in this region do not

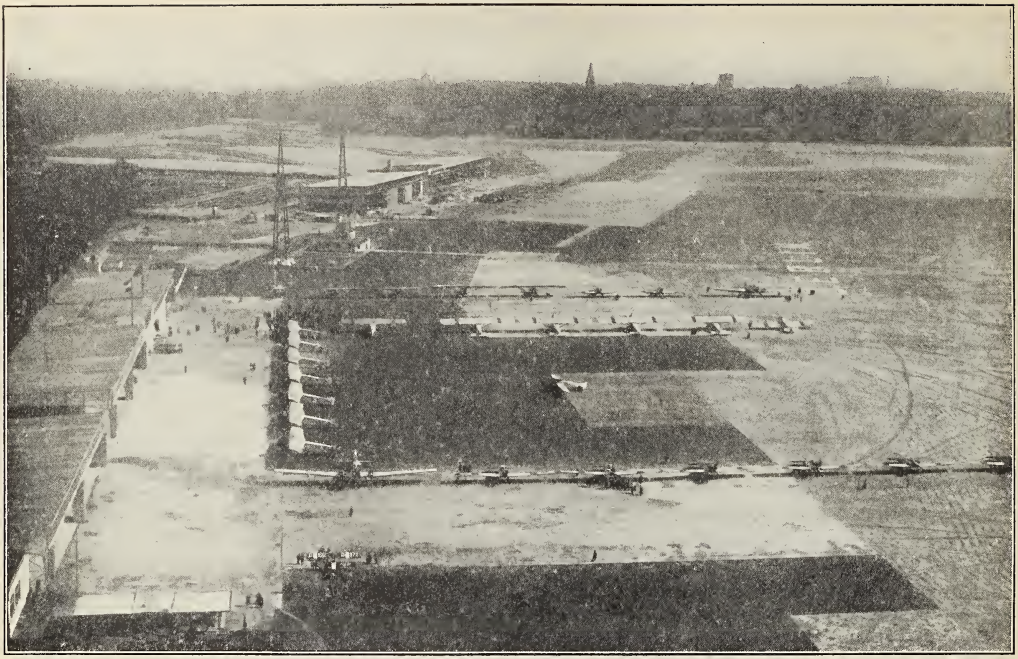


Figure 243 *From Oroc*

live a settled life, but move from place to place in search of game, fish, and pasture for their reindeer? Print after " 8 " in your legend, " Nomadic fishing and hunting region."

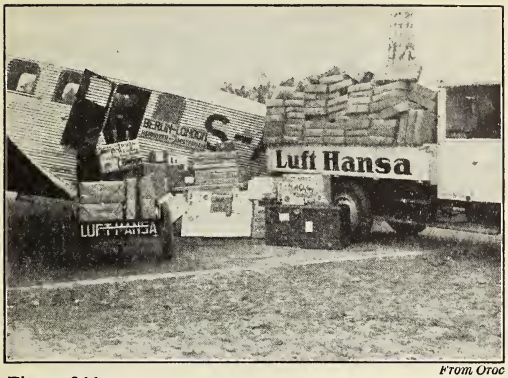
9. For further work with the work regions of Eurasia, use an outline map of Asia. Do you think that any of the work regions you have mapped in Europe extend into Asia? If so, which ones? Give reasons for your answer. Scatter " 8's " through the tundra belt and the central and northern parts of the coniferous forest zone of Siberia (Fig. 111). Logging, you will remember, is unimportant in the Siberian forest, and the few inhabitants there live, as do those of the tundra, chiefly by fishing and hunting. Print " 6's " in a belt of land extending along the Trans-Siberian Railroad, from the Urals eastward nearly to Lake Baikal. Explain why this belt of land should be included in region 6. Print " 1's " along the coastal lands of Asia Minor, Syria, and Palestine. Explain why these lands belong to the same work region as do the Mediterranean lands of Europe.

10. Scatter " 9's " through the following areas: (1) the Ganges delta; (2) the eastern coastal plain of India; (3) the western coastal plain of India south of Bombay; (4) Burma; (5) Indo-China; (6) Siam; (7) Malaya; (8) Java; (9) southern China; (10) Japan, except Hokkaido; (11) Chosen. What work do you associate with all of these areas? Why is rice so important a crop in these lands? Since the heavy monsoon rains of these lands are one of the chief reasons for the importance of rice there, do you not think " Wet-land monsoon farming region " would be a good name for this region? Print this name after " 9 " in your legend.

11. Scatter " 10's " through the following areas: (1) the Indus Valley and the upper Ganges Valley; (2) the Deccan; (3) northern China; (4) the central lowland of Manchuria.

What important differences can you state between these areas and those which you numbered 9? What crops are important in the areas which make up region 10? Why is rice of much less importance in region 10 than in region 9? Though various crops are raised in region 10, it will be helpful to think of the lands which comprise it as " wheat-millet lands," in contrast to the " rice lands " of region 9. Print the name " Dry-land monsoon farming region " after " 10 " in your legend.

12. Scatter " 11's " through the following areas: (1) interior Asia Minor; (2) Arabia; (3) Iraq; (4) Syria, except the coastal belt; (5) Palestine,



From Oroc

Figure 244

except the coastal belt; (6) Persia; (7) that part of Russia south of region 6, except the Caucasus; (8) Baluchistan; (9) Afghanistan; (10) Tibet; (11) Sinkiang; (12) Mongolia.

What kinds of work and what ways of living do you associate with this vast region which forms the heart of Asia? Why are so many of the people in this region nomads? There are, however, as you know, many places within this area in which people live a settled life, practicing agriculture. Do you not think that the name "Nomadic-grazing and oasis-farming region" is a suitable one to give to this great area? Print this name after "11" in your legend.

13. Compare your maps of work regions with the maps in Figures 6 and 7. Which are the most densely settled two of the work regions? The most sparsely settled two? What reasons can you give for the striking difference in density of population between regions 4 and 11? Will not the name of any one of these regions now suggest to you the geographic relationships which are outstanding in that region?

Air routes. — During recent years thousands of passengers and millions of pounds of freight have been carried from place to place in Europe by airplane. Passenger rates on some of the commercial air lines are not much higher than railroad fares. There are various routes over which regular commercial services are maintained. British, French, and German companies operate many of the air lines of Europe, and London, Paris, and Berlin are important air-line centers. Figure 243 shows a landing field for commercial airplanes at Berlin. In Figure 244 you see one of the express planes which flies between Berlin and London. It is being loaded at Berlin with packages for London.

Many of the air routes of Europe over which commercial planes fly are listed in the following paragraph. On an outline map of Europe show these routes by means of red lines. To map each route, locate carefully the places at the ends of the route and, except in cases in which other directions are given, connect the two places by a straight line.

(1) Belfast to Carlisle; (2) London to Manchester; (3) London to Amsterdam; (4) London to Rotterdam; (5) London to Brussels; (6) London to Paris; (7) Amsterdam to Bremen; (8) Amsterdam to Cologne; (9) Amsterdam to Rotterdam; (10) Rotterdam to Dortmund; (11) Rotterdam to Brussels; (12) Brussels to Cologne; (13) Brussels to Strasbourg; (14) Brussels to Paris; (15) Paris to Strasbourg; (16) Paris to Basle; (17) Strasbourg to Basle; (18) Basle to Zurich; (19) Basle to Bern; (20) Basle to Geneva; (21) Zurich to Bern; (22) Bern to Geneva; (23) Geneva to Lyon; (24) Marseille to Barcelona (following coast); (25) Barcelona to the Strait of Gibraltar (following coast); (26) Zurich to Munich; (27) Munich to Vienna; (28) Vienna to Budapest; (29) Budapest to Belgrade; (30) Belgrade to Bucharest; (31) Bucharest to Istanbul; (32) Vienna to Praha; (33) Strasbourg to Praha; (34) Cologne to Praha; (35) Praha to Bratislava; (36) Praha to Breslau; (37) Breslau to Warsaw; (38) Breslau to Berlin; (39) Breslau to Leipzig; (40) Leipzig to Berlin; (41) Berlin to Essen; (42) Berlin to Hamburg; (43) Berlin to Copenhagen; (44) Berlin to Danzig; (45) Danzig to Warsaw; (46) Danzig to Stockholm; (47) Danzig to Königsberg; (48) Königsberg to Moscow; (49) Königsberg to Riga; (50) Riga to Reval; (51) Reval to Helsingfors; (52) Helsingfors to Stockholm.

The map you have made suggests that the countries which have made the greater progress in developing this new means of commercial transport are in which part of Europe? Is this what you would have expected, or not? Why?

Label your map with an appropriate title and file it in your notebook.

Grain for bread. — Rice, wheat, and rye are the chief "bread grains" of Eurasia. Rice, as you know, is not commonly made into bread, but for many millions of people in Asia it takes the place of bread. Wheat and rye are the principal bread grains of Europe. In explaining the facts which Figures 245, 246, 247, and 248 show about the chief bread grains, it will be helpful to refer often to the table on page 270 which shows the areas of the countries of Eurasia.

From Figure 245, find what country of Asia leads

in the production of rice. What country is second? What reasons can you give for the importance of India and China as rice-producing countries? What reason can you give for the fact that Japan's production is far less than that of India or China? Although Japan has less than one-tenth as much rice land as India, it produces about what fraction of the rice grown in India? This means, of course, that Japan produces more than twice as much rice *per acre* as India. Indeed, the yield of rice *per acre* in Japan is greater than that in any other country of Asia. What facts have you learned which help to explain the large yield of Japan's rice lands? What other countries of Asia are important rice producers (Fig. 245)? Why are they important?

What countries of Europe do you recall as producers of rice? Figure 246 shows how the amounts raised in the leading rice-producing countries of Europe compare with the amount produced in Chosen. Notice that, of the seven countries of Asia listed in Figure 245, Chosen is the one which produces *least.* Notice the length of the bar which in Figure 245 stands for 100,000,000 bushels. In Figure 246 a bar of the same length stands for how many bushels? Bars short enough to stand for the production of rice in Italy and Spain could scarcely be drawn on the scale used in Figure 245. India produces about how many times as much rice as Italy? What reasons can you give for this difference?

What is the leading wheat-producing country of Eurasia (Fig. 247)? Where, in India, are the chief wheat-producing lands? How do these lands differ from the chief rice-producing lands of India? How does the area of India compare with that of Russia? What is the chief wheat-producing country that is wholly within Europe? The production in France is about what part of that in the United States? The area of France is only about *one-fourteenth* that of the United States. In proportion to *size*, then, the production of wheat is more important in which country? When comparing the production in the United States with that in European countries, it is important to remember that *all* of Europe is not very much larger than the United States. If the bars representing wheat production in the five countries listed in Figure 247 which are wholly within Europe were added together, how would their combined length compare with the length of the bar which stands for wheat production in the United States? There are twenty-one countries wholly within Europe all of which produce some wheat. Do you not see that, considering areas, the production of wheat in Europe is surprisingly large as compared with that in the United States? What have you learned about farming in Germany and certain other European countries, which helps to explain how European farmers in many cases secure relatively large yields from small areas? How many of the chief wheat-producing countries listed in Figure 247 are "Mediterranean countries"? Should you expect Italy and Spain to be among the leading wheat producers of Europe? Why? What reasons can you give for the fact that Italy produces less wheat than France, but more than Spain? What reasons can you give for the fact that Greece, a third "Mediterranean country," is not among the leading wheat-producing countries? What facts do you know about Rumania which help to explain why it is one of the more important wheat producers? In Hungary, as in Rumania, a large fraction of the land is used for wheat. Why, then, is Hungary not among the leading producing countries (p. 270)?

Name the three countries of Eurasia which lead in the production of rye (Fig. 248). The chief rye-producing lands of these three countries form a broad east-west strip of land which might well be called the "rye belt" of Europe. What reasons can you give for the importance of rye in this belt? How can you explain the fact that the United States, which is far more important than any European country as a producer of wheat, falls far behind the countries of the European rye belt in the production of rye? What parts of France do you associate with rye production? What part of Spain?

Write a paragraph for your notebook in which you explain as fully as you can why rice forms the chief "bread" of the peoples of eastern and southeastern Asia; why wheat bread is a staple food of the people in most parts of western and southern Europe; and why rye bread is a staple food of many people in the central and eastern portions of the great European plain.

"Measuring graphs." — You can use the graphs in Figures 249, 250, and 251, as well as those in Figures 245–248, to help you in measuring your knowledge of some of the facts you should have learned from your study of Eurasia. You should be able to explain (1) why the chief oats-producing countries of Europe are in its northern part; (2) why the production of oats is important in northern Europe, and unimportant in northern Asia (only a very small part of the oats produced in Russia is raised in Asiatic Russia); (3) why Britain and the Irish Free State rank high among the oats-producing countries of Europe, but are not among the important producers of any other grain; (4) why Sweden produces more oats than any other grain; (5) why

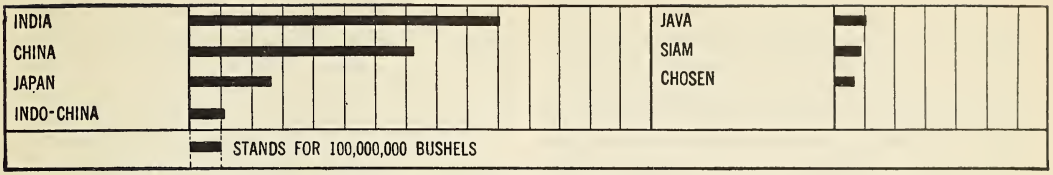


Figure 245. Production of rice in the chief rice-growing countries of Asia

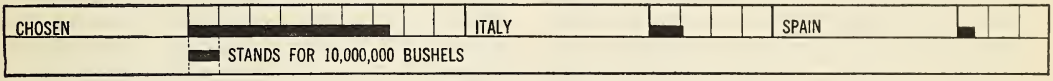


Figure 246. Production of rice in the chief rice-growing countries of Europe and in Chosen

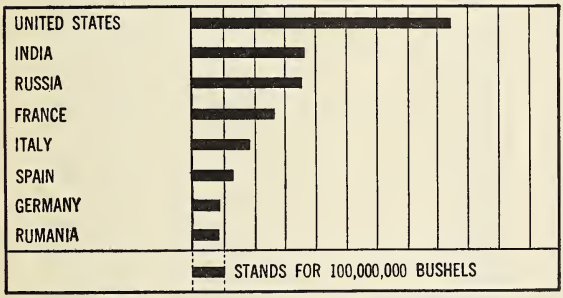


Figure 247. Production of wheat in the chief wheat-growing countries of Eurasia and in the United States

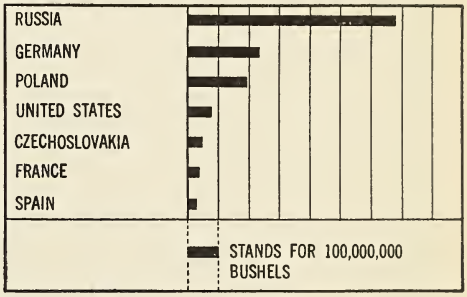


Figure 248. Production of rye in the chief rye-growing countries of Eurasia and in the United States

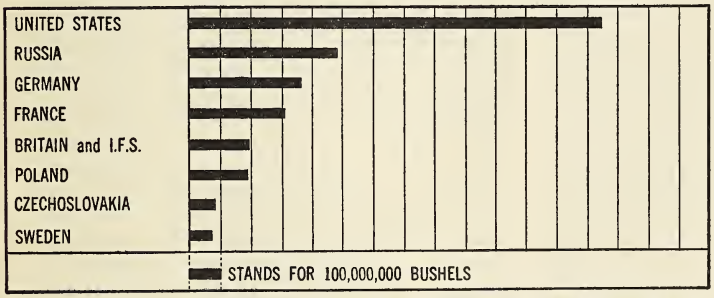


Figure 249. Production of oats in the chief oats-growing countries of Eurasia and in the United States

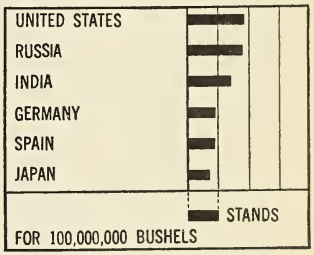


Figure 250. Production of barley in the chief barley-growing countries of Eurasia and in the United States

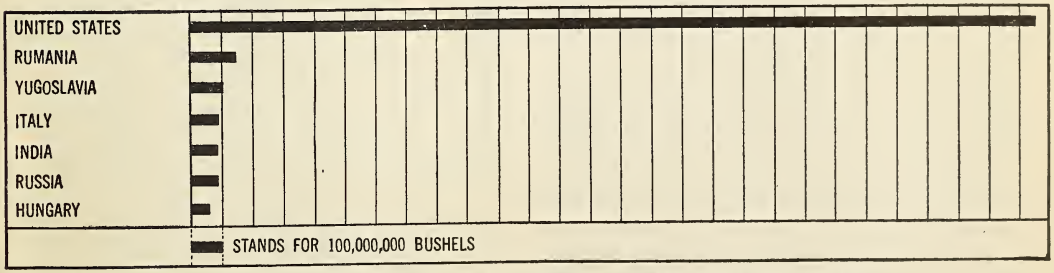


Figure 251. Production of corn in the chief corn-growing countries of Eurasia and in the United States

the name of Russia appears in more of the graphs (Figs. 245–251) than does that of any other Eurasian country; (6) why Spain is among the important producers of barley (p. 191); (7) why the chief corn-producing countries of Eurasia, with the exception of Russia, are all in the south (and why only the *southern* part of Russia, moreover, produces corn); (8) why Russia is less important as a producer of corn than as a producer of wheat, rye, oats, and barley; and (9) why Europe, as compared with the United States, produces relatively little corn.

Though rice, wheat, and rye are the chief grains used for human food in Europe and Asia, corn, barley, and oats are so used in some parts of those continents. You have learned that corn is a staple food in what country of Europe (p. 245)? Does not Figure 251 show you a reason for this? Also in Rumania corn forms an important part of the diet of the people. You have learned that barley is used for human food in which of the countries listed in Figure 250? Much oatmeal is used for food in Scotland. What reason can you give for this? Oats, barley, and corn also are used in large quantities as food for stock. Which of the countries listed in Figures 249, 250, and 251 do you think of as countries in which stock raising is important?

Graphs to make. — Using the following statistics, make for your notebook graphs of (1) the export of silk in a recent year, (2) the import of silk, (3) the export of cotton, and (4) the import of cotton.

Value of silk exported by the countries of Eurasia leading in the export of silk: Japan, $440,000,000; China, $90,000,000; Italy, $85,000,000.

Value of silk imported by the countries of Eurasia leading in the import of silk: France, $85,000,000; Germany, $15,000,000; Switzerland, $10,000,000.

Value of cotton exported by the countries of Eurasia leading in the export of cotton: India, $300,000,000; China, $35,000,000.

Value of cotton imported by the countries of Eurasia leading in the import of cotton: Britain, $525,000,000; Japan, $450,000,000; France, $200,000,000; Germany, $200,000,000; Italy, $120,000,000; Czechoslovakia, $70,000,000; Russia, $60,000,000; Belgium, $40,000,000.

What have you learned about these countries which helps you to explain the facts shown by your graphs? Do you not see that silk and cotton help to make Europe and Asia depend on one another?

Reference lists. — How might you find from the following lists the average density of population in any one of the countries listed? How does the sum of the populations of China and India compare with the sum of the populations of all the other countries in the list? This is *not* a table to be learned, but one to which it is helpful to refer when facts such as those suggested by the preceding questions are needed.

Country	Area (in Square Miles)	Population [1]
Afghanistan	255,000	6,300,000
Albania	17,374	800,000
Arabia	1,000,000	5,000,000
Austria	32,368	6,500,000
Belgium	11,753	7,700,000
Britain	94,101	44,100,000
Bulgaria	39,825	5,000,000
China	4,278,000	425,000,000
Czechoslovakia	54,198	13,600,000
Denmark	17,149	3,400,000
Dutch East Indies	733,648	49,300,000
Esthonia	18,359	1,200,000
Finland	149,993	3,500,000
France	212,736	39,200,000
Germany	181,511	62,400,000
Greece	54,000	6,500,000
Hungary	35,756	8,200,000
India	1,805,332	319,000,000
Indo-China	275,247	21,900,000
Iraq	143,520	3,000,000
Irish Free State	27,000	3,100,000
Italy	119,733	42,100,000
Japanese Empire	262,840	83,400,000
Latvia	25,402	1,800,000
Lithuania	21,490	2,200,000
Malaya	52,709	3,300,000
Nepal	54,000	5,600,000
Netherlands	13,212	7,400,000
Norway	125,016	2,700,000
Palestine	9,000	800,000
Persia	628,000	9,000,000
Poland	149,915	28,800,000
Portugal	35,499	6,000,000
Rumania	113,885	17,500,000
Russia	8,189,374	138,700,000
Siam	200,148	9,600,000
Spain	195,061	21,700,000
Sweden	173,150	6,000,000
Switzerland	15,945	3,900,000
Syria	60,000	3,000,000
Turkey	283,000	7,500,000
Yugoslavia	96,134	12,000,000

Picture talks. — After you have studied the geography of a country, many pictures taken there

[1] For some countries, there are only estimates.

should have much more meaning to you than they would have had earlier. For example, a picture of a Chinese junk at sea, such as that in Figure 189, may now remind you that China lacks modern steamships for overseas trade, that the foreign trade of China is carried on by vessels of other nations, and that the Chinese cling to the old custom of using junks. The picture might lead you to think of reasons for these facts. It might suggest differences between the maritime work of China and that of Japan, and reasons for these differences. Of course, the picture can only *suggest* or *help to recall* such things to you; it does not *show* the facts mentioned. Do you not see that an interesting, valuable talk might be based on this picture?

List the points you would make in a talk about the picture in Figure 53. Compare your lists to find to which of you the picture suggested most.

You might each choose one picture, taking care that no two of you decide finally upon the same one, and give the best talk you can about things which the picture suggests to you. Be careful to make your talks *geographic*, pointing out only facts and relationships which show how the lives and work of the people whom you discuss are adjusted to the kind of land in which they dwell. You might prepare, in this way, an interesting program with which to entertain guests.

An endless chain of cities. — If the cities suggested by the following phrases are named rightly, the final letter of each name except the last one will be the initial letter of the following name. The final letter of the last name suggested is the initial letter of the first one.

1. The chief city of Malaya.
2. The largest city of the Ruhr.
3. An English port which exports much coal.
4. The center of government in Scotland.
5. The chief seaport of Germany.
6. The " Liverpool " of Sweden.
7. A famous textile city in Flanders.
8. The capital of Japan.
9. The capital of Norway.
10. The chief city of western Siberia.
11. A silk-manufacturing city in Japan.
12. A cotton-manufacturing city in Japan.
13. A port on the Zuider Zee.
14. The gateway city of southern India.
15. The chief city of Asiatic Turkey.
16. The capital of Greece.
17. The capital of Sweden.
18. A German port on the Rhine.
19. The largest city of southern Germany.
20. A British seaport in China.
21. The chief seaport of northern Italy.
22. The chief seaport of Belgium.
23. The old capital of China.
24. Switzerland's western " gateway."
25. A Russian port on the White Sea.
26. The chief seaport of western England.
27. A Russian port on the Gulf of Finland.
28. The chief city of the Irish Free State.
29. The chief seaport of southern Italy.

Another chain. — Try to make a similar endless chain, writing phrases which suggest rivers, mountains, lakes, seas, and cities not suggested by any phrases in the preceding list. Each name suggested must be that of something in *Eurasia*, or of a sea bordering it. The pupil who can make the longest chain which is correct wins the game.

Each pupil who has made a chain puzzle might exchange puzzles with other members of the class, each solving the chains the others have made.

Traveling by air. — You might play a game with the air routes listed on page 267, each member of the class choosing some one of these routes, and describing sights he might see upon a journey by air over that route. The other members try to find from his description which route he had chosen. Each pupil must be careful to select a route which he thinks he can describe in such a way that others should be able to recognize it. He may name rivers, mountains, and cities which he passes on the way, but should mention neither of the cities at the ends of his journey.

Old games with new facts. — 1. The game " Ten questions " (*United States and Canada*, p. 133) may be played as well with countries of Europe and Asia as with the States of the United States.

2. The game " Traveling in Eurasia " (p. 222) may now be played using the names of any European or Asiatic cities about which you have read.

3. You might play " Hide and Seek " (p. 79), hiding facts about Asia among those about Europe, or hiding facts about Europe among those about Asia.

4. You might make pyramids and squares, using names of European or Asiatic places (*Journeys in Distant Lands*, pp. 64 and 110), or spell names of places, products, or work, with the initial letters of other names of places, products, or work.

5. You might make a " B " puzzle of some kind, for you have read of as many as twenty names of Eurasian cities, countries, seas, or mountains which begin with " B."

6. You might play with Europe and Asia the map game described on page 162, coloring all the countries of both continents.

7. What other old games can you name which you might now play with facts about European or Asiatic countries and cities?

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BOOKS SUGGESTED FOR EXTRA READING

In parts, at least, of each of the following books you will find interesting facts about the ways in which people work, play, and live in Europe and Asia. After you discover such facts, find all that you can, both in these books and in this geography, to help you explain them.

Allen, Nellie B.: *Asia.* (Ginn and Company.)

Allen, Nellie B.: *The New Europe.* (Ginn and Company.)

Bosworth, George F. (Ed.): *The British Isles.* (Cambridge University Press.)

Bosworth, George F. (Ed.): *Western Europe.* (Cambridge University Press.)

Bruce, Mrs. C. G.: *Kashmir.* (Adam and Charles Black.)

Burton Holmes Travel Stories, *Japan.* (Wheeler Publishing Company.)

Carpenter, Frank George: *Europe.* (American Book Company.)

Carpenter, Frank: *The Holy Land and Syria.* (Doubleday, Page and Company.)

Clark, Vinnie B.: *Europe.* (Silver, Burdett and Company.)

Fairgrieve, James, and Young, Ernest: *The Human Geographies, Book I, The British Isles.* (Secondary Series; George Philip and Son, Ltd.)

Fairgrieve, James, and Young, Ernest: *The Human Geographies, Book III, Euro-Asia.* (Secondary Series; George Philip and Son, Ltd.)

Fairgrieve, James, and Young, Ernest: *The Human Geographies, Book III, The British Isles.* (Primary Series; George Philip and Son, Ltd.)

Fairgrieve, James, and Young, Ernest: *The Human Geographies, Book VI, Europe and Britain.* (Primary Series; George Philip and Son, Ltd.)

Finnemore, John: *England;* Wilmot-Buxton, E. M.: *Wales.* (In one book; The Macmillan Company.)

Finnemore, John: *Home Life in India.* (Adam and Charles Black.)

Finnemore, John: *Italy;* Browne, Edith A.: *Greece.* (The Macmillan Company.)

George, Marian M.: *A Little Journey to France and Switzerland.* (A. Flanagan Company.)

George, Marian M.: *A Little Journey to Germany.* (A. Flanagan Company.)

George, Marian M., and Dean, M. Ida: *Little Journeys to Holland, Belgium and Denmark.* (A. Flanagan Company.)

Grierson, Elizabeth: *Scotland;* Tynan, Katherine: *Ireland.* (The Macmillan Company.)

Hall, May Emery: *Dutch Days.* (Moffat, Yard and Company.)

Herbertson, F. D.: *Asia.* (The Clarendon Press.)

Hoke, G. W.: *Lands and Life, Book I, Russia and the Old East.* (Johnson Publishing Company.)

Hunter, George McPherson: *When I Was a Boy in Scotland.* (Lothrop, Lee and Shepard.)

Huntington, Ellsworth: *Asia.* (Rand McNally and Company.)

Johnston, Lena E.: *China;* Finnemore, John: *Japan.* (The Macmillan Company.)

Jordan, David Starr, and Cather, Katherine Dunlap: *Highlights of Geography.* (World Book Company.)

Lyde, Lionel W.: *An Elementary Geography of Europe.* (Adam and Charles Black.)

Mackinder, H. J.: *Lands Beyond the Channel.* (George Philip and Son, Ltd.)

Mackinder, H. J.: *India.* (George Philip and Son, Ltd.)

McDonald, E. B., and Dalrymple, J.: *Boris in Russia.* (Little, Brown and Company.)

McDonald, E. B., and Dalrymple, J.: *Gerda in Sweden.* (Little, Brown and Company.)

Menpes, Mortimer: *China.* (A. and C. Black.)

Michaelis, Marie: *The Thames Basin.* (The Clarendon Press.)

Mockler-Ferryman, A. F.: *Norway;* Thomson, M. Pearson: *Denmark.* (The Macmillan Company.)

Munroe, Will S., and Buckbee, Anna: *Europe and Its People.* (Harper Bros.)

Olcott, Virginia: *Beppo and Lucia* (*Italy*). *Jean and Fanchon* (*France*). *Karl and Gretel* (*Germany*). (Silver, Burdett and Company.)

Price, Olivia: *The Middle Country* (*China*). (World Book Company.)

Redway, Jacques W.: *All Around Asia.* (Charles Scribner's Sons.)

Tomlinson, T. Everett: *The British Isles.* (Houghton, Mifflin and Company.)

Wade, Mary H.: *Our Little Swiss Cousin.* (L. C. Page and Company.)

Wade, Mary H.: *Twin Travelers in China and Japan.* (Frederick A. Stokes Company.)

Wade, Mary H.: *Twin Travelers in India.* (Frederick A. Stokes Company.)

Walter, L. Edna: *Finland and the Tundra.* (Adam and Charles Black.)

Walter, L. Edna: *Russia.* (Adam and Charles Black.)

Winslow, Clare Vostrosky: *Our Little Jugoslav Cousin.* (L. C. Page and Company.)

Note: In *St. Nicholas, Compton's Pictured Encyclopedia*, and the *Book of Knowledge*, you can find stories and other articles which contain valuable and interesting material relating to the geography of Europe and Asia.

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Helps in pronouncing words. — There are marks over some of the letters in various words in the index which will help you to pronounce those words correctly. If you do not know the meaning of these marks, you may refer as often as necessary to the following paragraph, in which words you already know how to pronounce are marked.

Pronounce ā as in dāy; ă as in măn; ä as in färm; â as in wâres; à as in tàsk; ą as in wąrm; ą as in metąl; ē as in ēquator; ĕ as in dĕlta; ē as in hērd; ę as in evęn; ĕ as in ĕvent; ī as in nīght; ĭ as in lĭve; ō as in glōbe; ŏ as in hŏt; ô as in nôrth; ȯ as in ȯbey; ū as in fūel; ŭ as in sŭn; ų as in rųle; ů as in ůnite; ў as in citў.

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